

APPENDIX C

MPDES PERMITS

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

In compliance with Mont. Code Annot. Section 75-5-101 *et seq.* and ARM Title 17, Chapter 30, Subchapters 5, 6, 7, and 13.

**Department of Environmental Quality
Zortman Mine Site
P.O. Box 313
Zortman, MT 59546**

is authorized to discharge from one water treatment plant, seven waste water capture systems, eleven storm water outfalls and five ground water outfalls

to receiving waters named, **Ruby Gulch, Carter Gulch, Alder Gulch, Lodgepole Creek and associated ground water systems**

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit. Specified load allocations support and serve to define total maximum daily loads for the receiving waters affected.

This permit shall become effective 30 days after date of issuance.

This permit and the authorization to discharge shall expire at midnight five years after the date of issuance.

FOR THE MONTANA DEPARTMENT
OF ENVIRONMENTAL QUALITY

Jan P. Sensibaugh
Director
Department of Environmental Quality

Dated this 16th day of November, 2001

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "**30-day (and monthly) average**," other than for fecal coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "**7-day (and weekly) average**," other than for fecal coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The 7-day averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks in the month that have at least 4 days. For example, if a calendar week overlaps two months, the weekly average is calculated only in the month that contains four or more days of that week.
3. The "**Annual Average Load**" is the arithmetic mean of all 30-day or monthly average loads reported during the calendar year for a monitored parameter.
4. The "**Arithmetic Mean**" or "**Arithmetic Average**" for any set of related values means the summation of the individual values divided by the number of individual values.
5. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.
6. "**Composite samples**" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous collection of sample, with sample collection rate proportional to flow rate.
7. A "**Daily Maximum Limit**" specifies the maximum allowable discharge of a

pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.

8. **"Department"** means the Montana Department of Environmental Quality (MDEQ).
9. **"Director"** means the Director of the United States Environmental Protection Agency's Water Management Division.
10. **"EPA"** means the United States Environmental Protection Agency.
11. A **"grab"** sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
12. An **"instantaneous"** measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
13. **"Load limits"** are mass-based discharge limits expressed in units such as lb./day.
14. A **"mixing zone"** is a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where water quality changes may occur. Also recognized as an area where certain water quality standards may be exceeded.
15. **"Nondegradation"** means the prevention of a significant change in water quality that lowers the quality of high-quality water for one or more parameters. Also, the prohibition of any increase in discharge that exceeds the limits established under or determined from a permit or approval issued by the Department prior to April 29, 1993.
16. The **"Regional Administrator"** is the administrator of the EPA Region with jurisdiction over federal water pollution control activities in the State of Montana.
17. **"Severe property damage"** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. The term **"TMDL"** means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.
19. **"TSS"** is the parameter total suspended solids.
20. **"Upset"** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly

designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an MPDES permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

1. **Surface Water Outfalls:**

Serial Number Description of Mine Drainage Discharge Points

- | | |
|-----|--|
| 667 | At the end of a discharge pipe which contains the discharge from the wastewater treatment plant in Ruby Gulch located at approximately 47°55'42" N latitude, 108°32'38" W longitude. |
| 696 | At the end of a capture trench , emptying to Ruby Gulch located at approximately 47°55'43" N latitude, 108°32'41" W longitude. |
| 693 | At a capture pond overflow , emptying to Ruby Gulch located at approximately 47°55'47" N latitude, 108°32'45" W longitude. |
| 695 | At the end of a capture trench , emptying to Carter Gulch located at approximately 47°55'31" N latitude, 108°33'47" W longitude.. |
| 692 | At the end of a capture trench , emptying to Alder Spur located at approximately 47°55'27" N latitude, 108°32'59" W longitude. |

Serial Number Description of Storm Water Discharge Points

- | | |
|-----|---|
| 694 | At the overflow of a storm water sediment basin , emptying to Ruby Gulch located at approximately 47°55'41" N latitude, 108°33'46" W longitude. |
| 605 | At the end of a storm water diversion , emptying to Alder Spur located at approximately 47°55'21" N latitude, 108°32'48" W longitude. |
| 606 | At the end of a storm water diversion , emptying to Alder Spur located at approximately 47°55'25" N latitude, 108°32'58" W longitude. |
| 607 | At the end of a storm water diversion , emptying to Alder Spur located at approximately 47°55'27" N latitude, 108°33'10" W longitude. |

- 611/612 Composite station at the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'30" N latitude, 108°33'45" W longitude.
- 609 At the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'41" N latitude, 108°33'49" W longitude.
- 608/613 Composite station at the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'49" N latitude, 108°33'49" W longitude.
- 614 At the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'31" N latitude, 108°33'49" W longitude.

2. Ground Water Outfalls

Description of Ground Water Discharge Points, Compliance Wells and Surface Water Compliance Sites

- Ruby Gulch Seepage to ground water from portions of the 79, 82 and 83 leach pads and all of the 85/86 and 89 leach pads, the OK and Ruby Gulch waste rock repository and the South Alabama, North Alabama, OK, Ruby, and Mint mine pits. Compliance well ZL-142 is located approximately 2.0 miles down gradient (south) from the upper drainage divide. Surface water compliance site Z-38 is located approximately 1.3 miles from the upper drainage divide.
- Alder Gulch Seepage to ground water from the Alder Gulch waste rock repository in Carter Gulch, portions of the 79, 82 and 83 leach pads and all of the 80/81 and 84 leach pads located in Alder Spur and the Alder Gulch land application disposal area (LAD). Compliance wells AG-202 and ZL-323 are located approximately 2.0 miles down gradient (south and east) from the upper drainage divide. Surface water compliance site Z-8 is located approximately 1.6 miles from the upper drainage divide.
- Lodgepole Creek Seepage to ground water from the north end of the Ross Pit. Compliance well ZL-209 (Glory Hole Creek) and surface water compliance sites S-1 (Ross Gulch) and Z-5 (Glory Hole Creek) are located approximately 1/4 to 1/2 mile down gradient (north) from the upper drainage divide.
- Goslin Flats Seepage to ground water from the land application of wastewater on Goslin Flats. Compliance wells ZL-211 and ZL-212 and surface water compliance site Z-22C are all located within several hundred feet of the downgradient edge of the land application area.

The ground water compliance wells listed for the above outfalls define the end of the ground water mixing zones. Maps showing the locations and dimensions of the ground water mixing

zones are included in the “Zortman/Landusky Project Ground Water and Surface Water Monitoring Plan”

C. Specific Limitations

Wastewater Effluent Limitations

Effective immediately and lasting through the term of the permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:

Mine Drainage Outfalls: Ruby Gulch 667, 693 and 696

TABLE 1: NUMERIC SURFACE WATER EFFLUENT LIMITS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Total suspended Solids (TSS), mg/L ⁽³⁾	20	30
Aluminum, dissolved, mg/L	0.087 ⁽⁴⁾	0.13
Arsenic, total recoverable, mg/L	0.018	0.027
Cadmium, total recoverable, mg/L	0.005	0.008
Copper, total recoverable, mg/L	0.031	0.046
Cyanide, total, mg/L	0.0052	0.0076
Iron, total recoverable, mg/L	1.0	1.5
Mercury, total recoverable, mg/L ⁽³⁾	0.00005 ⁽⁴⁾	0.00008 ⁽⁴⁾
Nickel, total recoverable, mg/L	0.1	0.15
Nitrate + nitrite total as N, mg/L	10	15
Selenium, total recoverable, mg/L	0.005	0.008
Zinc, total recoverable, mg/L	0.388	0.582
Whole Effluent Toxicity (WET) ⁽³⁾	N/A	1.0 TUa

(1) See the definitions in Part I.A for explanation of terms.

(2) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).

(3) This parameter applies only to the discharge from the water treatment plant (Outfall 667).

(4) Because the required reporting value (RRV) in WQB-7 for mercury (0.0006 mg/L) and for aluminum (0.1 mg/L) are higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

Mine Drainage Outfalls and Surface Water Compliance Sites: 692 (Alder Spur), 695 (Carter Gulch), S-1 (Ross Gulch), Z-22C (Goslin Flats), Z-38 (Ruby Gulch), Z-8 (Alder Gulch), and Z-5 (Glory Hole Creek)

TABLE 2: NUMERIC SURFACE WATER EFFLUENT LIMITS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Aluminum, dissolved	0.087	0.13
Arsenic, total recoverable, mg/L	0.018	0.027
Cadmium, total recoverable, mg/L	0.0034 / 0.005 ⁽⁴⁾	0.005 / 0.008 ⁽⁴⁾
Copper, total recoverable, mg/L	0.0132 / 0.031 ⁽⁴⁾	0.02 / 0.046 ⁽⁴⁾
Cyanide, total, mg/L ⁽³⁾	0.0052	0.0076
Iron, total recoverable, mg/L	1.0	1.5
Nickel, total recoverable, mg/L	0.073 / 0.1 ⁽⁴⁾	0.110 / 0.15 ⁽⁴⁾
Nitrate + nitrite total as N, mg/L	10	15
Selenium, total recoverable, mg/L	0.005	0.008
Zinc, total recoverable, mg/L	0.169 / 0.388 ⁽⁴⁾	0.253 / 0.582 ⁽⁴⁾

- (1) See the definitions in Part I.A for explanation of terms.
- (2) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (3) This parameter is not required at sampling site S-1 in Ross Gulch.
- (4) The first value is based on a hardness of 150 mg/L, this limit applies only to sites 692, 695, S-1, Z-8 and Z-5. The second value is based on a hardness of 400 mg/L, this limit applies only to sites Z-22C and Z-38.

The pH of the discharge shall remain between 6 and 9 standard units.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving stream.

There shall be no discharge of wastewater which reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving stream or upon adjoining shorelines.

There shall be no acute toxicity in the effluent discharged by the facility and no chronic toxicity outside the boundaries of the mixing zone.

Ground Water Monitoring Wells: ZL-142 (Ruby Gulch) AG-202, ZL-323 (Alder Gulch), ZL-211 and ZL-212 (Goslin Flats) and ZL-209 (Glory Hole Creek)

TABLE 3: NUMERIC GROUND WATER EFFLUENT LIMITS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Arsenic, dissolved, mg/L	0.02	0.03
Cadmium, dissolved, mg/L	0.005	0.008
Copper, dissolved, mg/L	1.3	2.0
Cyanide, total, mg/L ⁽³⁾	0.2	0.3
Nickel, dissolved, mg/L	0.10	0.15
Nitrate + nitrite Total as N, mg/L	10	15
Selenium, dissolved, mg/L	0.05	0.08
Zinc, dissolved, mg/L	2.1	3.1

- (1) See the definitions in Part I.A for explanation of terms.
- (2) For determination of metals use the dissolved method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (3) This parameter is not required at sampling site ZL-209 in Glory Hole Creek.

D. Self-Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

For purposes of determining compliance if a single sample is collected for a monthly reporting period, that sample must be less than the monthly average. If multiple samples (greater than 1) are collected in the month then the arithmetic mean of all the samples must be less than the 30-day average limit and no single sample shall exceed the instantaneous maximum limit.

Mine Drainage Outfall: 667 Wastewater Treatment Plant in Ruby Gulch

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	Daily	Instantaneous
pH, standard units	Daily	Grab
Specific Conductance, umho/cm	Daily	Grab
Total Suspended Solids, mg/L	Daily	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + nitrite total as N, mg/L	Weekly	Grab
Cyanide WAD, mg/L	Twice weekly	Grab
Cyanide, total, mg/L	Twice weekly	Grab

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab
Mercury, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab
Whole Effluent Toxicity (WET), TU _a	Quarterly	Grab

(1) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 693 and 696 (Ruby Gulch), 692 (Alder Spur), 695 (Carter Gulch)

TABLE 5: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Weekly	Instantaneous
pH, standard units	Weekly	Grab
Specific Conductance, umho/cm	Weekly	Grab
Total Suspended Solids, mg/L	Weekly	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Weekly	Grab
Cyanide, total, mg/L	Weekly	Grab
Aluminum, dissolved, mg/L	Weekly	Grab
Arsenic, total recoverable, mg/L	Weekly	Grab
Cadmium, total recoverable, mg/L	Weekly	Grab
Copper, total recoverable, mg/L	Weekly	Grab
Iron, total recoverable, mg/L	Weekly	Grab
Manganese, total recoverable, mg/L	Weekly	Grab
Nickel, total recoverable, mg/L	Weekly	Grab
Selenium, total recoverable, mg/L	Weekly	Grab
Zinc, total recoverable, mg/L	Weekly	Grab

(1) A sample shall be collected at the first sign of a discharge and weekly thereafter.

(2) See the definitions in Part I.A. of the permit.

Surface Water Compliance Sites: S-1 (Ross Gulch), Z-22C (Goslin Flats), Z-38 (Ruby Gulch), Z-8 (Alder Gulch) and Z-5 (Glory Hole Creek)

TABLE 6: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	April ⁽³⁾ , May, June, October ⁽³⁾	Instantaneous
pH, standard units	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Specific Conductance, umho/cm	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Total Suspended Solids, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Sulfate, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Hardness, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nitrate + nitrite total as N, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide WAD, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide, total, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Aluminum, dissolved, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Arsenic, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cadmium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Copper, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Iron, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Manganese, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nickel, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Selenium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Zinc, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab

- (1) See the definitions in Part I.A. of the permit.
 (2) This parameter is not required at sampling site S-1 (Ross Gulch).
 (3) Late April and October from the 15th to the end of the month.

Storm Water Outfalls - 694, 605, 606, 607, 611/612, 609, 608/613 and 614

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Semi-annual	Instantaneous
pH, standard units	Semi-annual	Grab
Specific Conductance, umho/cm	Semi-annual	Grab
Total Suspended Solids, mg/L	Semi-annual	Grab
Nitrate + nitrite total as N, mg/L	Semi-annual	Grab
Arsenic, total recoverable, mg/L	Semi-annual	Grab
Cadmium, total recoverable, mg/L	Semi-annual	Grab
Copper, total recoverable, mg/L	Semi-annual	Grab
Nickel, total recoverable, mg/L	Semi-annual	Grab

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Selenium, total recoverable, mg/L	Semi-annual	Grab
Zinc, total recoverable, mg/L	Semi-annual	Grab

- (1) One sample in May or June during a spring runoff event, and another sample during July, August or September during a thunderstorm event.
- (2) See the definitions in Part I.A. of the permit.

Evaluation of Storm Water Quality Monitoring Test Results

Upon the completion of each sampling event, and upon receipt of the sampling test results by the Permittee, the Permittee shall evaluate each parameter test result by comparison with the pertinent benchmark value stated in Table 9 of this Permit, which is entitled "Storm Water Discharge Parameter Benchmark Values. If there is an exceedance of the benchmark value, the Permittee shall evaluate the source and reason of the exceedance, and consider additional BMPs and/or other facility management measures which may need to be initiated to improve the quality of storm water discharges. These measures shall be implemented as necessary and updated in the facility SWPPP as required. A summary of this evaluation of storm water quality data, any exceedances of the benchmark values, and additional BMP and/or other measures which may be necessary shall be attached to the stormwater Discharge Monitoring Reports (DMR).

TABLE 8: STORM WATER DISCHARGE PARAMETER BENCHMARK VALUES⁽¹⁾

Parameter Name	Benchmark Level
Total Suspended Solids	100 mg/L
Nitrate + Nitrite as Nitrogen	0.68 mg/L
pH	6.0-9.0 s.u.
Arsenic, Total	0.16854 mg/L
Cadmium, Total	0.0159 mg/L
Copper, Total	0.0636 mg/L
Nickel, Total	1.417 mg/L
Selenium, Total	0.2385 mg/L
Zinc, Total	0.117 mg/L

- (1) Source of Table: EPA's 10/30/00 Final NPDES Storm Water Multi-Sector General Permit for Industrial Activities

Ground Water Wastewater Discharge Monitoring

Ground Water Compliance Wells - ZL-142 (Ruby Gulch) AG-202, ZL-323 (Alder Gulch/Carter Gulch) ZL-211 and ZL-212 (Goslin Flats) and ZL-209 (Glory Hole Creek)

TABLE 9: GROUND WATER MONITORING REQUIREMENTS		
Parameter	Frequency	Type ⁽¹⁾
Static water level, feet	July and November	Instantaneous
pH, standard units	July and November	Grab
Specific Conductance, umho/cm	July and November	Grab
Sulfate, mg/L	July and November	Grab

TABLE 9: GROUND WATER MONITORING REQUIREMENTS		
Parameter	Frequency	Type ⁽¹⁾
Hardness, mg/L	July and November	Grab
Nitrate + nitrite total as N, mg/L	July and November	Grab
Cyanide WAD, mg/L ⁽²⁾	July and November	Grab
Cyanide, total, mg/L ⁽²⁾	July and November	Grab
Arsenic, total recoverable, mg/L	July and November	Grab
Cadmium, total recoverable, mg/L	July and November	Grab
Copper, total recoverable, mg/L	July and November	Grab
Iron, total recoverable, mg/L	July and November	Grab
Manganese, total recoverable, mg/L	July and November	Grab
Nickel, total recoverable, mg/L	July and November	Grab
Selenium, total recoverable, mg/L	July and November	Grab
Zinc, total recoverable, mg/L	July and November	Grab

(1) See the definitions in Part I.A. of the permit.

(2) Does not include Lodgepole Creek sampling site Z-209

Whole Effluent Toxicity Testing - Acute Toxicity

Starting in the first calendar quarter following the effective date of the permit, the permittee shall, at least once each calendar quarter conduct an acute static renewal toxicity test on a dechlorinated or prechlorinated composite sample of the effluent. Testing will employ one species per quarter and the permittee shall alternate between the two test species from one quarter to the next. Samples shall be collected on a two day progression; i.e., if the first yearly sample is on a Monday, the second yearly sample shall be on a Wednesday, etc. Saturdays, Sundays and Holidays will be skipped in the progression.

The toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-600/4-90/027 and the Region VIII EPA NPDES Acute Test Conditions - Static Renewal Whole Effluent Toxicity Test testing protocols. The permittee shall conduct an acute 48-hour static renewal toxicity test using *Ceriodaphnia sp.* and an acute 96-hour static renewal toxicity test using fathead minnows (*Pimephales promelas*) as the alternating species. The control of pH in the toxicity test utilizing CO2 enriched atmospheres is allowed to prevent rising pH drift. The target pH selected must represent the pH value of the combination of effluent and receiving water at the dilution that corresponds to the toxicity limitation. This target pH value is determined before the actual toxicity sample is collected by preparing a one liter mixture of effluent and receiving water at the concentration representing the toxicity limitation. The mixture is allowed to equilibrate in a beaker at room temperature for three hours. At the end of this period, the pH is measured and reported to the laboratory conducting the toxicity analysis.

The acute toxicity measured in the effluent shall not exceed the effluent limitation expressed in Toxic Units Acute (TUa). If more than 10 percent control mortality occurs, the test is considered invalid and shall be repeated until satisfactory control survival is achieved, unless a specific

individual exception is granted by the Department. This exception may be granted if less than 10 percent mortality was observed at the dilutions containing high effluent concentrations.

If acute toxicity exceeds the effluent limitation in a routine test, an additional test shall be conducted within two weeks of the date when the permittee is informed of the exceedance. Should acute toxicity exceed the effluent limitation in the second test, testing shall occur once a month until further notified by the Department.

The quarterly test results from the laboratory shall be reported along with the Discharge Monitoring Report (DMR) form submitted for the end of the reporting calendar quarter (e.g., whole effluent results for the reporting quarter ending March 31 shall be reported with the March DMR due April 28, with the remaining quarterly reports submitted with the June, September, and December DMRs). The format for the laboratory report shall be consistent with the latest revision of the EPA form Region VIII Guidance for Acute Whole Effluent Reporting, and shall include all chemical and physical data as specified.

Toxicity Reduction Evaluation (TRE)
Toxicity Identification Evaluation (TIE)

Should the effluent exceed the acute toxicity limitation in a routine test and is confirmed by the additional test, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control of, or treatment for the toxicity. Failure to initiate, or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the whole effluent toxicity limits contained in Part I.C.1 of this permit. A TRE plan needs to be submitted to the permitting authority within 45 days after confirmation of the continuance of the effluent toxicity.

II. MONITORING RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.
- C. Penalties for Tampering. The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both.
- D. Reporting of Monitoring Results. Self-monitoring results will be reported monthly. Monitoring results obtained during the previous reporting period shall be summarized and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the "Signatory Requirements" (see Part IV.G of this permit), and submitted to the Department and the Regional Administrator at the following addresses:
- | | |
|--|---|
| a) Montana Department of Environmental Quality | b) U.S. Environmental Protection Agency |
| Water Protection Bureau | 301 South Park Avenue |
| P.O. Box 200901 | Drawer 10096 |
| Helena, Montana 5 9620-0901 | Helena, Montana 5 9626 |
| Phone: (406) 444-3080 | Phone: (406) 441-1123 |
- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using approved analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
 3. The date(s) analyses were performed;

4. The time analyses were initiated;
 5. The initials or name(s) of individual(s) who performed the analyses;
 6. References and written procedures, when available, for the analytical techniques or methods used; and
 7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.
- I. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 841-3911. The following examples are considered serious incidents:
 - a. Any noncompliance which may seriously endanger health or the environment;
 - b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities".); or
 - c. Any upset which exceeds any effluent limitation in the permit (See Part III.H of this permit, "Upset Conditions".).
 2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.
 4. Reports shall be submitted to the addresses in Part II.D of this permit, "Reporting of Monitoring Results".
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.
- K. Inspection and Entry. The permittee shall allow the head of the Department or the Director, or an authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:
1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Department or the Regional Administrator advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.
- B. Penalties for Violations of Permit Conditions. The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed \$10,000 for each day of violation and up to a maximum not to exceed \$100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, "Bypass of Treatment Facilities" and Part III.H of this permit, "Upset Conditions", nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
- F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Any sludges removed from the facility shall be disposed of in accordance with 40 CFR 503, 258 or other applicable rule. EPA and MDEQ shall be notified at least 180 days prior to such disposal taking place.
- G. Bypass of Treatment Facilities:
1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.G.2 and III.G.3 of this permit.
 2. Notice:
 - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, "Twenty-four Hour Reporting".
 3. Prohibition of bypass.
 - a. Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass, unless:

- (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under Part III.G.2 of this permit.
- b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part III.G.3.a of this permit.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under Part II.I of this permit, "Twenty-four Hour Notice of Noncompliance Reporting"; and
 - d. The permittee complied with any remedial measures required under Part III.D of this permit, "Duty to Mitigate".
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time

provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Department as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. One hundred micrograms per liter (100 µg/l);
 - b. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - d. The level established by the Department in accordance with 40 CFR 122.44(f).
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. Five hundred micrograms per liter (500 µg/l);
 - b. One milligram per liter (1 mg/l) for antimony;
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

The level established by the Department in accordance with 40 CFR 122.44(f).

IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be revoked, modified and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and

- reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application must be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for revoking, modifying and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren't supplied earlier.
- G. Signatory Requirements. All applications, reports or information submitted to the Department or the EPA shall be signed and certified.
1. All permit applications shall be signed as follows:
 - a. For a corporation: by a responsible corporate officer;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Department, and
 - b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- H. Penalties for Falsification of Reports. The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$25,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.
- K. Property or Water Rights. The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
 1. The current permittee notifies the Department at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;
 3. The Department does not notify the existing permittee and the proposed new permittee of an intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and
 4. Required annual and application fees have been paid.
- N. ~~Fees.~~ The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, the Department may:
1. Impose an additional assessment consisting of 15% of the fee plus interest on the required fee computed at the rate established under 15-31-510(3), MCA, or
 2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. The Department may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this sub-section. Suspensions are limited to one year, after which the permit will be terminated.
- O. Reopener Provisions. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:
1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. Water Quality Standards are Exceeded: If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, the Department may modify the effluent limits or water management plan.
 3. TMDL or Wasteload Allocation: TMDL requirements or a wasteload allocation is developed and approved by the Department and/or EPA for incorporation in this permit.
 4. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

5. Toxic Pollutants: A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

V. SPECIAL CONDITIONS

A. Storm Water Pollution Prevention Plan (SWPPP)

The permittee shall be required to implement the *Storm Water Management Plan for Zortman and Landusky Mine Sites* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated August 1996. This plan was approved by the Department and incorporated into the final *Water Quality Improvement and Monitoring Compliance Plan* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated July 1996.

Administrative Requirements for the SWPPP

The plan shall:

1. be retained on site in accordance with Part VI.A. of this permit for active mine sites or retained in the nearest field office for inactive mine sites and oil and gas facilities;
2. be amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to state surface waters, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with mine reclamation activities. A copy of any plan amendments must be submitted to the Department within 7 working days of any change.

FACT SHEET
for Proposed Permit Limits (Permit Renewal)

PERMITTEE: Department of Environmental Quality
Zortman Mine
P.O. Box 313
Zortman, MT 59546

CONTACT: Director
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

PHONE: (406) 444-2544

PERMIT NO.: MT-0024856

LOCATION: T25N, R25E, Sections 6, 7, 17 and 18
Phillips County, Montana

RECEIVING WATERS: Ruby Gulch, Carter Gulch, Alder Spur, and associated ground water systems

A. Status of Permit

MPDES Permit No.: MT-0024856 was issued, on January 3, 1987, to Zortman Mining Inc, (ZMI) Zortman Mine Site for the discharge of storm water to Glory Hole Creek and the East Fork Ruby Gulch. The permit expired on October 31, 1991.

In August 1993, a suit was filed in District Court by the State of Montana against ZMI and Pegasus Gold, alleging violations of the Montana Water Quality Act. This was due in part to acid rock drainage (ARD) at the mine sites. The Environmental Protection Agency (EPA) filed suit in Federal District Court in June 1995, alleging that discharges from the mine sites in seven drainages were in violation of the Federal Clean Water Act (Civil Action No. 95-95-BLG-JDS). The State of Montana then filed in Federal District Court and citizen suits were also filed in Federal District Court by Island Mountain Protectors and the Fort Belknap Indian Community Council (Fort Belknap) (Civil Action No. 95-96-BLG-JDS). Settlement discussions among the parties occurred during 1995 and early 1996 to resolve the complaints. A Consent Decree was lodged in Federal District Court on July 22, 1996. After a public comment period, the Consent Decree became effective on September 27, 1996.

A new MPDES permit application was submitted by Zortman Mining, Inc. on December 20, 1996 pursuant to Paragraph 16.a of the Consent Decree. The permit application identified process water, mine drainage and storm water outfalls. This Fact Sheet and

Permit were originally being prepared in response to the permit application and Consent Decree. The Consent Decree is to terminate one year after the effective date of this permit provided that the permittee complies with the terms and conditions of the discharge permit.

Since the 1996 permit application was submitted ZMI has filed for bankruptcy protection. ZMI assets are now being liquidated under Chapter 7. The reclamation bond is held by a surety company and administrated by the Department of Environmental Quality (DEQ). The DEQ and Bureau of Land Management (BLM) are responsible for the reclamation at the site. The 1996 permit application envisioned continued mining at the site and is no longer accurate. A revised permit application is being prepared by the DEQ, which reflects the current reclamation status of the mine. The revised permit will be issued to the DEQ and signed by the current director.

A Metal Mine Reclamation Act (MMRA) operating permit was issued to ZMI on May 17, 1979. A ground water mixing zone was implied in this permit. Although the MMRA permit remains in effect it is no longer applicable to an operating mine and the ground water mixing zone designation and compliance monitoring have been moved to the MPDES permit.

B. Description of the Discharging Facility

Zortman Mining Inc. (ZMI) operated two gold mines: the Zortman Mine and the Landusky Mine from 1979 until 1996. The two mines lie adjacent to one another in the Little Rocky Mountains in Phillips County, Montana. In 1998 ZMI filed for bankruptcy protection and the mine went into a reclamation mode. Prior to the bankruptcy ZMI had constructed two mechanical wastewater treatment systems, one in Montana Gulch and one in Ruby Gulch.

The treatment system in Ruby Gulch at the Zortman Mine consists of a mechanical lime addition plant sized to discharge approximately 1,000 gpm (Outfall 667). Three capture systems feed the mechanical plant. Outfalls have been designated for each capture system in case of a pump failure or large precipitation event (Outfalls 696, 692, and 695).

There are ten storm water outfalls located on site (Outfalls 694, 605, 606, 607, 608, 609, 611, 612, 613 and 614). Outfalls 608/613 and 611/612 are composite outfalls on the west side and east side, respectively. A storm water management plan was submitted by ZMI to the Department in August of 1996. Storm water BMPs consist of diversion ditches, control berms, sediment basins, check dams, filter fence, etc (see Special Conditions Section I) (Hydrometrics, Inc. 1996)

Reclamation in the form of regrading and capping of waste dumps and leach pads is in process and expected to continue for from 2 to 5 years.

Process water from the heaps, located at both the Landusky and Zortman Mines, is discharged by land application on Goslin Flats during May through October at

approximately 100 million gallons a year. Goslin Flats has been designated as a source area of pollutants and an outfall assigned in this permit.

C. Description of Discharge and Discharge Points

1. **Past Discharge Data**

The original permit MPDES No.: MT-0024856 issued to Zortman Mining Inc, Zortman Mine Site, was for the discharge of storm water from open mine pits to Glory Hole Creek and the East Fork of Ruby Gulch. The discharges to Glory Hole Creek and the East Fork of Ruby Gulch are two of 18 outfalls currently under consideration at the site. The outfalls include the discharge of mine drainage after treatment, overflows of mine drainage from capture systems, storm water, and ground water. Compliance monitoring is at the designated outfalls, in groundwater monitoring wells, and one surface water monitoring site.

Data is available on all the new proposed outfalls and background surface water and ground water quality in the DEQ's Water Protection Bureau (WPB) and Environmental Management Bureau (EMB) files. During the life of the original permit there were no discharges of mine pit water.

2. **Surface Water Outfalls:**

Serial Number Description of Mine Drainage Discharge Points

667	At the end of a discharge pipe which contains the discharge from the wastewater treatment plant in Ruby Gulch located at approximately 47°55'42" N latitude, 108°32'38" W longitude.
696	At the end of a capture trench , emptying to Ruby Gulch located at approximately 47°55'43" N latitude, 108°32'41" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.
693	At a capture pond overflow , emptying to Ruby Gulch located at approximately 47°55'47" N latitude, 108°32'45" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.
695	At the end of a capture trench , emptying to Carter Gulch located at approximately 47°55'31" N latitude, 108°33'47" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

- 692 At the end of a **capture trench**, emptying to **Alder Spur** located at approximately 47°55'27" N latitude, 108°32'59" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

Serial Number Description of Storm Water Discharge Points

- 694 At the overflow of a **storm water sediment basin**, emptying to **Ruby Gulch** located at approximately 47°55'41" N latitude, 108°33'46" W longitude.
- 605 At the end of a **storm water diversion**, emptying to **Alder Spur** located at approximately 47°55'21" N latitude, 108°32'48" W longitude.
- 606 At the end of a **storm water diversion**, emptying to **Alder Spur** located at approximately 47°55'25" N latitude, 108°32'58" W longitude.
- 607 At the end of a **storm water diversion**, emptying to **Alder Spur** located at approximately 47°55'27" N latitude, 108°33'10" W longitude.
- 608/613 Composite station at the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'49" N latitude, 108°33'49" W longitude.
- 609 At the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'41" N latitude, 108°33'49" W longitude.
- 611/612 Composite station at the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'30" N latitude, 108°33'45" W longitude.
- 614 At the end of a **storm water diversion**, emptying to **Carter Gulch** located at approximately 47°55'31" N latitude, 108°33'49" W longitude.

3. **Ground water Outfalls**

Description of Ground Water Discharges, Compliance Wells, and the Surface Water Compliance Sites S-1 (Ross Gulch) and Z-22C (Goslin Flats)

- Ruby Gulch Seepage to ground water from portions of the 79, 82 and 83 leach pads and all of the 85/86 and 89 leach pads, the OK and Ruby Gulch

waste rock repository and the South Alabama, North Alabama, OK, Ruby, and Mint mine pits. Compliance well ZL-142 is located approximately 2.0 miles down gradient (south) from the upper drainage divide. Surface water compliance site Z-38 is located approximately 1.3 miles downgradient from the upper drainage divide.

- Alder/Carter Gulch Seepage to ground water from the Alder Gulch waste rock repository in Carter Gulch, portions of the 79, 82 and 83 leach pads and all of the 80/81 and 84 leach pads located in Alder Spur and the Alder Gulch land application disposal area (LAD). Compliance wells AG-202 and ZL-323 are located approximately 2.0 miles down gradient (south and east) from the upper drainage divide. Surface water compliance site Z-8 is located approximately 1.6 miles downgradient from the upper drainage divide.
- Lodgepole Creek Seepage to ground water from the north end of the Ross Pit. Compliance well ZL-209 (Glory Hole Creek) and surface water compliance sites S-1 (Ross Gulch) and Z-5 (Glory Hole Creek) are located approximately 1/4 to 1/2 mile down gradient (north) from the upper drainage divide.
- Goslin Flats Seepage to ground water from the land application of wastewater on Goslin Flats. Compliance wells ZL-211 and ZL-212 and surface water compliance site Z-22C are all located within several hundred feet of the downgradient edge of the land application area.

The ground water compliance wells listed for the above outfalls define the end of the ground water mixing zones. Maps showing the locations and dimensions of the ground water mixing zones are included in the "Zortman/Landusky Project Ground Water and Surface Water Monitoring Plan"

D. Description of Receiving Water

Surface water in the mine area emanates from beneath waste rock repositories, heap leach facilities or springs and seeps effected by mining. The outfalls have been designated at these points except Outfall 667. Outfall 667 is the discharge to Ruby Gulch from the wastewater treatment plant. Flow data from the treatment plant (Outfall 667) for the first 10 months of the year 2000 indicate an average annual flow of 108 gpm. This annual average flow from the treatment plant was used to calculate the waste load allocations. The volume of 108 gpm is equal to the combination of the individual capture systems (Outfalls 696, 692 and 695). The discharge occurs approximately 3 days a week for 8 hours a day.

Surface Water Outfalls 667, 696, 693, 695, and 692, Storm Water Outfalls 694, 605, 605, 607, 608, 609, 611, 612, 613, and 614, Groundwater Outfalls in Ruby Gulch, Alder/Carter Gulch, and Goslin Flats

Ruby Gulch and Alder Gulch and their tributaries in the area of the discharge are classified as “C-3” [ARM 17.30.610(5)]. Waters classified “C-3” are considered suitable for bathing, swimming, and recreation, growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agricultural and industrial water supply [ARM 17.30.629(1)].

Lodgepole Creek and its tributaries (Ross Gulch and Glory Hole Creek) in the area of the discharge are classified as “B-1” [ARM 17.30.610(8)]. Waters classified as “B-1” are considered suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agriculture and industrial water supply [ARM 17.30.623(1)].

Ruby Gulch from the headwaters to 1 mile below the town of Zortman is listed on Montana's 1996 303(d) list and is given a low priority for development of total maximum daily loads (TMDLs). The water body number for the affected segment of Ruby Gulch is MT40EJ002-7. The probable impaired uses are warm water fishery, drinking water supply, aquatic life support and swimming. The probable causes for impairment are metals, pH flow alteration and other habitat alteration. The probable source is listed as surface mining and resource extraction. Ruby Gulch is on the 2000 303(d) list.

Alder Spur and Carter Gulch are both tributaries to Alder Gulch. Alder Gulch, in the area of the discharges, is listed on Montana's 1996 303(d) list and is given a low priority for TMDL development. The water body number for the affected segment of Alder Gulch is MT40EJ002-5. The probable impaired uses are cold water fishery, drinking water supply, aquatic life support and swimming. The probable causes for impairment are metals, suspended solids and pH. The probable source is listed as resource extraction. Alder Gulch is on the 2000 303(d) list.

Groundwater Outfall in Lodgepole Creek

Glory Hole Creek is a tributary of Lodgepole Creek, which is located in the Peoples Creek drainage. The Peoples Creek drainage in the area of the discharges is classified as “B-1” [ARM 17.30.610(8)(d)]. Waters classified “B-1” are considered suitable for drinking, culinary, and food-processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply [ARM 17.30.623(1)].

Lodgepole Creek and its tributary Glory Hole Creek are not listed on Montana's 1996 303(d) list.

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment (WQLS), the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, et al., CV 97-35-M-DWM, District of Montana, Missoula Division. This section of the Statement of Basis establishes justification for renewal of this permit under the September 21, 2000 order.

The Montana Water Quality Act authorizes the issuance of point source discharge permits on a listed water body pending completion of a TMDL provided that: 1) the discharge in compliance with the provisions of 75-5-303, MCA (Nondegradation Policy); 2) the discharge will not cause a decline in water quality for the parameters for which the water body is listed; and, 3) the minimum treatment requirements are met.

The limits set in this permit will serve as the TMDLs for each limited parameter. Compliance with the limits set in the permit will insure that water quality standards are met and beneficial uses protected and improved. With completion of all reclamation work and the implementation of all reasonable land soil and water conservation practices the department will consider the delisting of these stream segments.

The discharges to Ruby Gulch, Alder Gulch and Glory Hole Creek were in existence prior to April 29, 1993 and as such are not considered new or increased sources. (ARM 17.30.702(16)) The provisions of the nondegradation policy only apply to new or increased sources. (ARM 17.30.705(1))

Metals, pH and habitat alteration caused by resource extraction impair the streams in the areas of the discharges. This permit sets limits on metals that do not exceed the lowest applicable standards and improve existing water quality. The pH in the discharges is maintained at between 6 and 9 standard units. The permit does not allow a discharge which will cause habitat alteration.

This permit requires minimum treatment limits for TSS and all other parameters if they are more restrictive than water quality based limits.

E. Mixing Zone

The mixing zones for all surface water outfalls are considered instantaneous because they represent the headwaters of the stream and therefore the mean daily flow of the discharge exceeds the 7-day, 10-year low flow of the receiving water. (ARM 17.30.516(3)(d)) The 7-day, 10-year low flow for the capture system outfalls is zero. During storm events when storm water will provide dilution capacity for the discharge from the capture systems the mixing zone shall extend 10 stream widths (ARM 17.30.516(4)).

Ground water mixing zones have been established for each drainage which contain either mine waste rock repositories, leach pads, mine pits, or seeps and springs effected by mine activities. These ground water mixing zones have been established based on the disturbances and the geology at the mine site. Mining took place within the core of a tertiary syenite complex ringed by Paleozoic sedimentary rocks. The mixing zones typically extend from the headwaters of the drainages within the syenite complex down gradient to the contact with the Paleozoic formations. Compliance wells and surface water compliance sites (Goslin Flats and Ross Gulch) are located near the end of the mixing zones to monitor for compliance with the water quality standards.

F. Proposed Wastewater Effluent Limits

1. **Technology Based Effluent Limits**

Active mines are subject to technology-based effluent limits for metals (cadmium, copper, lead, mercury and zinc), pH and TSS as defined in 40 CFR Part 440 – Ore Mining and Dressing Point Category Source Category, Subpart J – Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory. The technology based limits which apply in this permit are the New Source Performance Standards (NSPS) [40 CFR 440.104(a)]. When there are both technology based and water quality based limits for a particular parameter, the more stringent of the two limits is set as the final effluent limit. Water quality based limits for all parameters, except TSS, in all outfalls were more stringent than the NSPS standards.

Inactive mines are not subject to technology based limits. No water quality based effluent limits (WQBEL) were developed for TSS, therefore the technology-based limit will be imposed. The TSS limit shall only apply to Outfall 667 where mechanical treatment is proposed.

2. **Water Quality Based Effluent Limits**

WQBELs are generally derived from a dilution model based on the concentration of and the 7-day 10-year low flow in the receiving stream and the high flow and concentration in the discharge. The resulting instream concentrations are the lowest of either human health or chronic aquatic water quality standard from WQB-7 (September 1999).

Because the discharges covered by this permit are the first waters to exist in the various drainages which emanate from the sources themselves no mixing in receiving water is available to impute into a dilution model. For this reason no modeling has been done and the WQBEL are equal to the applicable standards. Standards for metals vary based on the hardness of the water. Data from monitoring site Z-15 in Ruby Gulch indicate that the hardness is greater than 400 mg/L, therefore the water quality standards for metals (for both the Ruby Gulch and Goslin Flats sites) were calculated using a hardness of 400 mg/L (Table 1). A hardness of 150 mg/L, which is the arithmetic mean of the data at monitoring site Z-8 from 1997 through 1998, was used to calculate limits in Carter Gulch and Alder

Spur(Table 2). Based on data from Swift Gulch, which is similarly on the north side of the mining area, a hardness of 150 mg/L was used to calculate limits in Ross Gulch.

Mercury was first tested from 1987 through 1990 as part of the Alder Gulch land application area in Zortman. In 1991, mercury was added as part of the regular sampling program for all sites. Mercury was never used in the mining or milling process in the early days of mining nor during the ZMI era of mining. There have been a total of 2,136 samples tested for mercury over 20+ years. Of those samples, 21 have been over the detection limit. However, the detection limits used were higher than the mercury human health standard in surface water (0.00005 mg/L). Therefore, a surface water effluent limit for mercury at the outfall for the waste water treatment plant (outfall 667) is included in the permit.

Ground water limits are based on the human health standard as determined in Department Circular WQB-7 (September 1999). Human health standards are not hardness dependent.

The 30-day average limit was set at the standard and 1.5 times that limit was set as the instantaneous maximum.

Storm Water

Numeric effluent limits have not been defined in this permit for storm water discharges. Benchmark monitoring levels, as defined in the Department's *General Discharge Permit for Storm Water Associated with Mining and with Oil and Gas Facilities*, Permit No MT-R300000 are required as discussed in Section 2.

G. Final Wastewater Effluent Limitations

1. **Surface Water Final Effluent Limitations**

Mine Drainage Outfalls: Ruby Gulch 667, 693, and 696

TABLE 1: NUMERIC SURFACE WATER EFFLUENT LIMITATIONS

Parameter ⁽³⁾	Concentration (mg/L) ⁽¹⁾		Allocated Annual Average Load ⁽²⁾ (lb./day)	Rationale
	30-Day Average	Instantaneous Maximum		
Total suspended Solids (TSS) ⁽⁴⁾	20	30	26	NSPS Guidelines for Ore Mining (40 CFR 440.104(a))
Aluminum, dissolved	0.087 ⁽⁵⁾	0.13	0.113	Water Quality Standard (Chronic Aquatic WQB-7)
Arsenic, total recoverable	0.018	0.027	0.023	Water Quality Standard (Human Health WQB-7)

TABLE 1: NUMERIC SURFACE WATER EFFLUENT LIMITATIONS

Parameter⁽³⁾	Concentration (mg/L) ⁽¹⁾		Allocated Annual Average Load ⁽²⁾ (lb./day)	Rationale
	30-Day Average	Instantaneous Maximum		
Cadmium, total recoverable	0.005	0.008	0.0065	Water Quality Standard (Human Health WQB-7)
Copper, total recoverable	0.031	0.046	0.04	Water Quality Standard (Chronic Aquatic WQB-7)
Cyanide, total	0.0052	.0076	0.007	Water Quality Standard (Chronic Aquatic WQB-7)
Iron, total recoverable	1.0	1.5	1.3	Water Quality Standard (Chronic Aquatic WQB-7)
Mercury, total recoverable ⁽⁴⁾	0.00005 ⁽⁵⁾	0.00008 ⁽⁵⁾	0.000065	Water Quality Standard (Human Health WQB-7)
Nickel, total recoverable	0.10	0.15	0.13	Water Quality Standard (Human Health WQB-7)
Nitrate + nitrite total as N	10	15	13.0	Water Quality Standard (Human Health WQB-7)
Selenium, total recoverable	0.005	0.008	0.0065	Water Quality Standard (Chronic Aquatic WQB-7)
Zinc, total recoverable	0.388	0.582	0.5	Water Quality Standard (Chronic Aquatic WQB-7)
Whole Effluent Toxicity (WET) ⁽⁴⁾	N/A	1.0 TUa	N/A	Water Quality Standard (ARM 17.30.629(2)(h)(I))

- (1) See the definitions in Part I.A for explanation of terms.
- (2) The allocated loads for Ruby Gulch are based on the 30-day average limit and the annual average values of flow from the water treatment plant Outfall 667 of 108 gpm. Load limits apply only to Outfall, 667, which is the discharge from the wastewater treatment plant. This is the only outfall expected to discharge.
- (3) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (4) This parameter applies only to the discharge from the water treatment plant (Outfall 667).
- (5) Because the required reporting value (RRV) in WQB-7 for mercury (0.0006 mg/L) and for aluminum (0.1 mg/L) are higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

Mine Drainage Outfalls and Surface Water Compliance Sites: 692 and 695 (Alder/Carter Gulch), S-1 (Ross Gulch), Z-22C (Goslin Flats), Z-38 (Ruby Gulch), Z-8 (Alder Gulch), and Z-5 (Glory Hole Creek)

TABLE 2: NUMERIC SURFACE WATER EFFLUENT LIMITATIONS

Parameter ⁽³⁾	Concentration (mg/l) ⁽¹⁾		Allocated Annual Average Load ⁽²⁾ (lb./day)	Rationale
	30-Day Average	Instantaneous Maximum		
Aluminum, dissolved	0.087	0.13	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)
Arsenic, total recoverable	0.018	0.027	see footnote (2)	Water Quality Standard (Human Health WQB-7)
Cadmium, total recoverable	0.0034 / 0.005 ⁽⁵⁾	0.005 / 0.008 ⁽⁵⁾	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7) / (Human Health WQB-7)
Copper, total recoverable	0.0132 / 0.031 ⁽⁵⁾	0.02 / 0.046 ⁽⁵⁾	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)
Cyanide, total ⁽⁴⁾	0.0052	0.0076	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)
Iron, total recoverable	1.0	1.5	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)
Nickel, total recoverable	0.073 / 0.1 ⁽⁵⁾	0.110 / 0.15 ⁽⁵⁾	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7) / (Human Health WQB-7)
Nitrate + nitrite total as N	10	15	see footnote (2)	Water Quality Standard (Human Health WQB-7)
Selenium, total recoverable	0.005	0.008	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)
Zinc, total recoverable	0.169 / 0.388 ⁽⁵⁾	0.253 / 0.582 ⁽⁵⁾	see footnote (2)	Water Quality Standard (Chronic Aquatic WQB-7)

- (1) See the definitions in Part I.A for explanation of terms.
- (2) Because of the lack of flow data in the drainages loads have not been allocated. Data developed over the five-year term of the permit will be used to develop load allocations in the future.
- (3) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (4) This parameter is not required at sampling site S-1 in Ross Gulch.
- (5) The first value is based on a hardness of 150 mg/L, this limit applies only to sites 692, 695, S-1, Z-8 and Z-5. The second value is based on a hardness of 400 mg/L, this limit applies only to sites Z-22C and Z-38.

The pH of the discharge shall remain between 6 and 9 standard units (ARM 17.30.629(2)(f)).

There shall be no discharge of floating solids or visible foam in other than trace amounts (ARM 17.30.629(2)(f))(ARM 17.30.623(2)(f)).

There shall be no discharge, which causes visible oil sheen in the receiving stream (ARM 17.30.637(1)(b)).

There shall be no discharge of wastewater, which reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving stream or upon adjoining shorelines (ARM 17.30.637(1)(a)).

There shall be no acute toxicity in the effluent discharged by the facility and no chronic toxicity outside the boundaries of the mixing zone (ARM 17.30.629(2)(h)(i)).

2. Ground Water Final Compliance Limitations

Ground Water Compliance Wells: ZL-142 (Ruby Gulch) AG-202, ZL-323 (Alder Gulch/Carter Gulch) ZL-211 and ZL-212 (Goslin Flats) and ZL-209 (Glory Hole Creek)

TABLE 3: NUMERIC GROUND WATER EFFLUENT LIMITATIONS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾		Rationale
	30-Day Average	Instantaneous Maximum	
Arsenic, dissolved	0.02	0.03	Water Quality Standard (Human Health WQB-7)
Cadmium, dissolved	0.005	0.008	Water Quality Standard (Human Health WQB-7)
Copper, dissolved	1.3	2.0	Water Quality Standard (Human Health WQB-7)
Cyanide, total ⁽³⁾	0.2	0.3	Water Quality Standard (Human Health WQB-7)
Nickel, dissolved	0.10	0.15	Water Quality Standard (Human Health WQB-7)
Nitrate + nitrite total as N	10	15	Water Quality Standard (Human Health WQB-7)
Selenium, dissolved	0.05	0.08	Water Quality Standard (Human Health WQB-7)
Zinc, dissolved	2.1	3.1	Water Quality Standard (Human Health WQB-7)

(1) See the definitions in Part I.A for explanation of terms.

- (2) For determination of metals use the dissolved method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983.
- (3) This parameter is not required at sampling site ZL-209 in Glory Hole Creek.

H. Self-Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

For purposes of determining compliance if a single sample is collected for a monthly reporting period, that sample must be less than the monthly average. If multiple samples (greater than 1) are collected in the month than the arithmetic mean of all the samples must be less than the 30-day average limit and no single sample shall exceed the instantaneous maximum limit.

1. **Surface Wastewater Discharge Monitoring**

Mine Drainage Outfall: 667 Wastewater Treatment Plant in Ruby Gulch

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type⁽¹⁾
Effluent Flow Rate, gpm	Daily	Instantaneous
pH, standard units	Daily	Grab
Specific Conductance, umho/cm	Daily	Grab
Total Suspended Solids, mg/L	Daily	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + nitrite total as N, mg/L	Weekly	Grab
Cyanide WAD, mg/L	Twice weekly	Grab
Cyanide, total, mg/L	Twice weekly	Grab
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Mercury, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab
Whole Effluent Toxicity (WET), TU _a	Quarterly	Grab

(1) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 693 and 696 (Ruby Gulch), 692 (Alder Spur), 695 (Carter Gulch)

TABLE 5: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Weekly	Instantaneous
pH, standard units	Weekly	Grab
Specific Conductance, umho/cm	Weekly	Grab
Total Suspended Solids, mg/L	Weekly	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Weekly	Grab
Cyanide, total, mg/L	Weekly	Grab
Aluminum, dissolved, mg/L	Weekly	Grab
Arsenic, total recoverable, mg/L	Weekly	Grab
Cadmium, total recoverable, mg/L	Weekly	Grab
Copper, total recoverable, mg/L	Weekly	Grab
Iron, total recoverable, mg/L	Weekly	Grab
Manganese, total recoverable, mg/L	Weekly	Grab
Nickel, total recoverable, mg/L	Weekly	Grab
Selenium, total recoverable, mg/L	Weekly	Grab
Zinc, total recoverable, mg/L	Weekly	Grab

(1) A sample shall be collected at the first sign of a discharge and weekly thereafter.

(2) See the definitions in Part I.A. of the permit.

Surface Water Compliance Sites: S-1 (Ross Gulch), Z-22C (Goslin Flats), Z-38 (Ruby Gulch), Z-8 (Alder Gulch), and Z-5 (Glory Hole Creek)

TABLE 6: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	April ⁽³⁾ , May, June, October ⁽³⁾	Instantaneous
pH, standard units	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Specific Conductance, umho/cm	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Total Suspended Solids, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Sulfate, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Hardness, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nitrate + nitrite total as N, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide WAD, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide, total, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Aluminum, dissolved, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Arsenic, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cadmium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Copper, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Iron, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Manganese, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nickel, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Selenium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Zinc, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab

(1) See the definitions in Part I.A. of the permit.

(2) This parameter is not required at sampling site S-1 (Ross Gulch).

(3) Late April and October from the 15th to the end of the month.

Storm Water Outfalls - 694, 605, 606, 607, 611/612, 609, 608/613 and 614

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Semi-annual	Instantaneous
pH, standard units	Semi-annual	Grab
Specific Conductance, umho/cm	Semi-annual	Grab
Total Suspended Solids, mg/L	Semi-annual	Grab
Nitrate + nitrite total as N, mg/L	Semi-annual	Grab
Arsenic, total recoverable, mg/L	Semi-annual	Grab
Cadmium, total recoverable, mg/L	Semi-annual	Grab
Copper, total recoverable, mg/L	Semi-annual	Grab

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Nickel, total recoverable, mg/L	Semi-annual	Grab
Selenium, total recoverable, mg/L	Semi-annual	Grab
Zinc, total recoverable, mg/L	Semi-annual	Grab

- (1) One sample in May or June during a spring runoff event, and another sample during July, August or September during a thunderstorm event.
- (2) See the definitions in Part I.A. of the permit

2. Evaluation of Storm Water Quality Monitoring Test Results

Upon the completion of each sampling event, and upon receipt of the sampling test results by the Permittee, the Permittee shall evaluate each parameter test result by comparison with the pertinent benchmark value stated in Table 9 of this Permit, which is entitled "Storm Water Discharge Parameter Benchmark Values". If there is an exceedance of the benchmark value, the Permittee shall evaluate the source and reason of the exceedance, and consider additional BMPs and/or other facility management measures which may need to be initiated to improve the quality of storm water discharges. These measures shall be implemented as necessary and updated in the facility SWPPP as required. A summary of this evaluation of storm water quality data, any exceedances of the benchmark values, and additional BMP and/or other measures which may be necessary shall be attached to the stormwater Discharge Monitoring Reports (DMR).

TABLE 8: STORM WATER DISCHARGE PARAMETER BENCHMARK VALUES⁽¹⁾

Parameter Name	Benchmark Level
Total Suspended Solids	100 mg/L
Nitrate + Nitrite Nitrogen	0.68 mg/L
pH	6.0-9.0 s.u.
Arsenic, Total	0.16854 mg/L
Cadmium, Total	0.0159 mg/L
Copper, Total	0.0636 mg/L
Nickel, Total	1.417 mg/L
Selenium, Total	0.2385 mg/L
Zinc, Total	0.117 mg/L

- (1) Source of Table: EPA's 10/30/00 Final NPDES Storm Water Multi-Sector General Permit for Industrial Activities

3. Ground Water Wastewater Discharge Monitoring

Ground Water Compliance Wells - ZL-142 (Ruby Gulch) AG-202, ZL-323 (Alder Gulch/Carter Gulch) ZL-211 and ZL-212 (Goslin Flats) and ZL-209 (Glory Hole Creek)

TABLE 9: GROUND WATER MONITORING REQUIREMENTS		
Parameter	Frequency	Type ⁽¹⁾
Static water level, feet	July and November	Instantaneous
pH, standard units	July and November	Grab
Specific Conductance, umho/cm	July and November	Grab
Sulfate, mg/L	July and November	Grab
Hardness, mg/L	July and November	Grab
Nitrate + nitrite total as N, mg/L	July and November	Grab
Cyanide WAD, mg/L ⁽²⁾	July and November	Grab
Cyanide, total, mg/L ⁽²⁾	July and November	Grab
Arsenic, total recoverable, mg/L	July and November	Grab
Cadmium, total recoverable, mg/L	July and November	Grab
Copper, total recoverable, mg/L	July and November	Grab
Iron, total recoverable, mg/L	July and November	Grab
Manganese, total recoverable, mg/L	July and November	Grab
Nickel, total recoverable, mg/L	July and November	Grab
Selenium, total recoverable, mg/L	July and November	Grab
Zinc, total recoverable, mg/L	July and November	Grab

(1) See the definitions in Part I.A. of the permit.

(2) Does not include sampling site Z-209 in Glory Hole Creek

I. Special Conditions

Storm Water Pollution Prevention Plan (SWPPP)

The permittee shall be required to implement the *Storm Water Management Plan for Zortman and Landusky Mine Sites* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated August 1996. This plan was approved by the Department and incorporated into the final *Water Quality Improvement and Monitoring Compliance Plan* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated July 1996.

Administrative Requirements for the SWPPP

The plan shall:

1. be retained on site in accordance with Part VI.A. of this permit for active mine sites or retained in the nearest field office for inactive mine sites and oil and gas facilities;
2. be amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to state surface waters, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with mine reclamation activities. A copy of any plan amendments must be submitted to the Department within 7 working days of any change.

J. Information Sources

While developing the effluent limitations, monitoring requirements and special conditions for the draft permit, the following information sources were used to establish the basis of the draft permit and are hereby referenced:

- (1) ARM Title 17, Chapter 30, Sub-chapter 5 - Mixing Zones in Surface and Ground Water.
- (2) ARM Title 17, Chapter 30, Sub-chapter 6 - Surface Water Quality Standards.
- (3) ARM Title 17, Chapter 30, Sub-chapter 7 - Nondegradation of Water Quality.
- (4) ARM Title 17, Chapter 30, Sub-chapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Standards.
- (5) Consent Decree, (1996), In the United States District Court for the District of Montana Billings Division, Civil Action No. 95-95-Blg-JDS and No. 95-96-Blg-JDS
- (6) Consolidated MPDES Permit Application Form 1 and Short Form 2C, received December 24, 1996.
- (7) Environmental Management Bureau Discharge Monitoring Reports.
- (8) Harvey, Kevin C., (1998), Background Surface Water Quality at the Zortman Landusky Mine Sites, pp.31.
- (9) Hydrometrics, Inc., (1996) Storm Water Management Plan for Zortman and Landusky Mine Sites.
- (10) Montana Water Quality Act, MCA 75-5-101 et seq.

- (11) Montana (1996) 303(d) List, list of Waterbodies in Need of Total Maximum Daily Load Development.
- (12) MPDES Permit File No. MT-0000396, effective date of January 3 1987, expiration date of October 31, 1991.
- (13) Updated MPDES Permit Application for the Landusky Mine Site Phillips County, Montana, dated December 20, 1996.

PREPARED BY: TERRY WEBSTER, MARCH 2001
REVISED: NOVEMBER 2001

Major Industrial
No Bio-monitoring
Permit No.: MT-0024864

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

In compliance with Mont. Code Annot. Section 75-5-101 *et seq.* and ARM Title 17, Chapter 30, Subchapters 5, 6, 7, and 13.

**Department of Environmental Quality
Landusky Mine Site
P.O. Box 313
Zortman, MT 59546**

is authorized to discharge from one water treatment plant, seven waste water capture systems, eleven storm water outfalls and five ground water outfalls

to receiving waters named, **Montana Gulch, Swift Gulch, King Creek, Mill Gulch, and Sullivan Gulch Park, and associated ground water systems**

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit. Specified load allocations support and serve to define total maximum daily loads for the receiving waters affected.

This permit shall become effective 30 days after date of issuance.

This permit and the authorization to discharge shall expire at midnight five years after the date of issuance.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

Jan P. Sensibaugh
Director
Department of Environmental Quality

Dated this 16th day of November, 2001

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "**30-day (and monthly) average**," other than for fecal coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "**7-day (and weekly) average**," other than for fecal coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The 7-day averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks in the month that have at least 4 days. For example, if a calendar week overlaps two months, the weekly average is calculated only in the month that contains four or more days of that week.
3. The "**Annual Average Load**" is the arithmetic mean of all 30-day or monthly average loads reported during the calendar year for a monitored parameter.
4. The "**Arithmetic Mean**" or "**Arithmetic Average**" for any set of related values means the summation of the individual values divided by the number of individual values.
5. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.
6. "**Composite samples**" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous collection of sample, with sample collection rate proportional to flow rate.

7. A "**Daily Maximum Limit**" specifies the maximum allowable discharge of a pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.
8. "**Department**" means the Montana Department of Environmental Quality (MDEQ).
9. "**Director**" means the Director of the United States Environmental Protection Agency's Water Management Division.
10. "**EPA**" means the United States Environmental Protection Agency.
11. A "**grab**" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
12. An "**instantaneous**" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
13. "**Load limits**" are mass-based discharge limits expressed in units such as lb./day.
14. A "**mixing zone**" is a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where water quality changes may occur. Also recognized as an area where certain water quality standards may be exceeded.
15. "**Nondegradation**" means the prevention of a significant change in water quality that lowers the quality of high-quality water for one or more parameters. Also, the prohibition of any increase in discharge that exceeds the limits established under or determined from a permit or approval issued by the Department prior to April 29, 1993.
16. The "**Regional Administrator**" is the administrator of the EPA Region with jurisdiction over federal water pollution control activities in the State of Montana.
17. "**Severe property damage**" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
18. The term "**TMDL**" means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.
19. "**TSS**" is the parameter total suspended solids.
20. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does

not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an MPDES permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

1. **Surface Water Outfalls:**

<u>Serial Number</u>	<u>Description of Mine Drainage Discharge Points</u>
591	At the outfall of a lined collection pond which contains the discharge from a waste water treatment plant and the mine drainage from Montana Gulch, emptying to Montana Gulch located at approximately 47°54'30" N latitude, 108°37'47" W longitude.
571	Mine drainage emptying to Swift Gulch located at approximately 47°55'34" N latitude, 108°35'50" W longitude.
590	Mine drainage emptying to King Creek located at approximately 47°55'26" N latitude, 108°37'00" W longitude.
599	At the end of a capture trench , emptying to Montana Gulch located at approximately 47°54'19" N latitude, 108°37'34" W longitude.
592	At the end of a staging pond , emptying to Montana Gulch located at approximately 47°54'21" N latitude, 108°37'34" W longitude.
598	At the end of a capture trench , emptying to Mill Gulch located at approximately 47°54'30" N latitude, 108°36'28" W longitude.
595	At the end of a capture trench , emptying to Sullivan Park located at approximately 47°54'41" N latitude, 108°35'53" W longitude.
587	At the end of a capture pond , emptying to Sullivan Park located at approximately 47°54'43" N latitude, 108°35'54" W longitude.

<u>Serial Number</u>	<u>Description of Storm Water Discharge Points</u>
508	At the end of a water sediment basin , emptying to Swift Gulch located at approximately 47°55'18" N latitude, 108°35'50" W longitude.
596	At the end of a water sediment basin , emptying to King Creek located at approximately 47°55'35" N latitude, 108°37'03" W longitude.
514	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°55'00" N latitude, 108°37'31" W longitude.
597	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°54'29" N latitude, 108°37'48" W longitude.
519	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°55'25" N latitude, 108°37'45" W longitude.
512	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°54'17" N latitude, 108°37'35" W longitude.
511	At the end of a storm water diversion , emptying to Mill Gulch located at approximately 47°54'18" N latitude, 108°37'09" W longitude.
517	At the end of a storm water diversion , emptying to Mill Gulch located at approximately 47°54'37" N latitude, 108°37'01" W longitude.
506	At the end of a storm water diversion , emptying to Mill Gulch located at approximately 47°54'29" N latitude, 108°36'28" W longitude.
505	At the end of a storm water diversion , emptying to Sullivan Park located at approximately 47°54'40" N latitude, 108°35'52" W longitude.
504	At the end of a storm water diversion , emptying to Sullivan Park located at approximately 47°54'55" N latitude, 108°35'41" W longitude.

2. **Ground Water Outfalls**

Description of Ground Water Discharges, Compliance Wells, and the Surface Water Compliance Site for Swift Gulch

Montana Gulch	Seepage to ground water from the 80-82 pad, 83 pad, 85-86 pad, Montana Gulch waste rock repository, Gold Bug Pit backfill, and the Queen Rose Pit located in the upper Montana Gulch drainage. Compliance wells ZL-319 and ZL-113 are located approximately 1.5 miles down gradient (southeast). Surface water compliance site D-7 is located 1.5 miles downgradient from the upper drainage divide.
Mill Gulch	Seepage to ground water from the Mill Gulch waste rock repository, the Mill Gulch pad and the 87-91 pad. Compliance well ZL-136 is located approximately 1.5 miles down gradient (southwest). Surface water compliance site L-22 is located 1.1 miles downgradient from the upper drainage divide.
Rock Creek/Sullivan	Seepage to ground water from the Sullivan Gulch pad and the 87-91 pad. Compliance wells ZL-308 and ZL-310 are located approximately 1.5 miles down gradient (southwest). Surface water compliance site RCSS-10 is located 1.1 miles downgradient from the upper drainage divide.
Swift Gulch	Seepage to ground water is from the Queen Rose and Surprise pit backfill materials in upper Swift Gulch. If source control fails to stop the seepage at Outfall 571, seepage will be collected and treated prior to discharge to surface water through Outfall 571 (see the special conditions in section V of this permit). Surface water compliance station L-49 is located approximately 1 mile down the drainage (northwest).
King Creek	Seepage to ground water from the August #2 waste rock repository located in upper King Creek. If removal of the waste repository fails to remediate the seep, seepage will be collected and treated prior to discharge to surface water through Outfall 590 (see the special conditions in section V of this permit). Compliance well ZL-139 is located approximately 1/2 mile down gradient (west). Surface water compliance site L-39 is located 1.0 mile downgradient from the upper drainage divide.

The ground water compliance wells listed for the above outfalls define the end of the ground water mixing zones. Maps showing the locations and dimensions of the ground water mixing zones are included in the "Zortman/Landusky Project Ground Water and Surface Water Monitoring Plan"

C. Specific Limitations

Wastewater Effluent Limitations

Effective immediately and lasting through the term of the permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:

Mine Drainage Outfalls: 591, 592 and 599 (Montana Gulch), 598 (Mill Gulch), 587 and 595 (Rock Creek/Sullivan Gulch), and 590 (King Creek)

TABLE 1: NUMERIC SURFACE WATER EFFLUENT LIMITS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Total suspended Solids (TSS) ⁽³⁾	20	30
Aluminum, dissolved	0.087 ⁽⁵⁾	0.13
Arsenic, total recoverable	0.018	0.027
Cadmium, total recoverable	0.005	0.008
Copper, total recoverable	0.031	0.046
Cyanide, total ⁽⁴⁾	0.0052	0.0076
Iron, total recoverable	1.0	1.5
Mercury, total recoverable ⁽³⁾	0.00005 ⁽⁵⁾	0.00008 ⁽⁵⁾
Nickel, total recoverable	0.1	0.15
Nitrate + Nitrite total as N	10	15
Selenium, total recoverable	0.005	0.008
Zinc, total recoverable	0.388	0.582
Whole Effluent Toxicity (WET) ⁽³⁾	Not Applicable	1.0 TUa

- (1) See the definitions in Part I.A for explanation of terms.
- (2) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (3) This parameter applies only to the discharge from the water treatment plant (Outfall 591).
- (4) This parameter is not required at Outfall 590 in King Creek.
- (5) Because the required reporting value (RRV) in WQB-7 for mercury (0.0006 mg/L) and for aluminum (0.1 mg/L) are higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

Mine Drainage Outfall and Surface Water Compliance Site: 571 and L-49 (Swift Gulch)

TABLE 2: NUMERIC SURFACE WATER EFFLUENT LIMITS

Parameter ⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Aluminum, dissolved	0.087 ⁽³⁾	0.13
Arsenic, total recoverable	0.018	0.027
Cadmium, total recoverable	0.0034	0.005

TABLE 2: NUMERIC SURFACE WATER EFFLUENT LIMITS

Parameter⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Copper, total recoverable	0.0132	0.02
Iron, total recoverable	1.0	1.5
Nickel, total recoverable	0.073	0.110
Nitrate + Nitrite total as N	10	15
Selenium, total recoverable	0.005	0.008
Zinc, total recoverable	0.169	0.253

- (1) See the definitions in Part I.A for explanation of terms.
- (2) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (3) Because the required reporting value (RRV) in WQB-7 for aluminum (0.1 mg/L) is higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

The pH of the discharge shall remain between 6 and 9 standard units.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving stream.
There shall be no discharge of wastewater, which reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving stream or upon adjoining shorelines.

There shall be no acute toxicity in the effluent discharged by the facility and no chronic toxicity outside the boundaries of the mixing zone.

Ground Water Compliance Wells: ZL-319 and ZL-113 (Montana Gulch), ZL-136 (Mill Gulch), ZL-308 and ZL-310 (Rock Creek/Sullivan Gulch) and ZL-139 (King Creek)

TABLE 3: NUMERIC GROUND WATER EFFLUENT LIMITS

Parameter⁽²⁾	Concentration (mg/l) ⁽¹⁾	
	30-Day Average	Instantaneous Maximum
Arsenic, dissolved	0.020	0.030
Cadmium, dissolved	0.005	0.008
Copper, dissolved	1.3	2.0
Cyanide, total ⁽³⁾	0.2	0.3
Nickel, dissolved	0.10	0.15
Nitrate + Nitrite Total as N	10	15
Selenium, dissolved	0.05	0.08
Zinc, dissolved	2.1	3.1

- (1) See the definitions in Part I.A for explanation of terms.

- (2) For determination of metals use the dissolved method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (3) This parameter is not required at sampling site ZL-139 in King Creek.

D. Self-Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

For purposes of determining compliance if a single sample is collected for a monthly reporting period, that sample must be less than the monthly average. If multiple samples (greater than 1) are collected in the month than the arithmetic mean of all the samples must be less than the 30-day average limit and no single sample shall exceed the instantaneous maximum limit.

1. **Surface Wastewater Discharge Monitoring**

Mine Drainage Outfall: 591 Wastewater Treatment Plant in Montana Gulch

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type⁽¹⁾
Effluent Flow Rate, gpm	Daily	Instantaneous
pH, standard units	Daily	Grab
Specific Conductance, umho/cm	Daily	Grab
Total Suspended Solids, mg/L	Daily	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + Nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Twice weekly	Grab
Cyanide, total, mg/L	Twice weekly	Grab
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab
Mercury, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Whole Effluent Toxicity (WET), TU _a	Quarterly	Grab

(1) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 592 and 599 (Montana Gulch), 598 (Mill Gulch), 587 and 595 (Rock Creek/Sullivan Gulch)

TABLE 5: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Weekly	Instantaneous
pH, standard units	Weekly	Grab
Specific Conductance, umho/cm	Weekly	Grab
Total Suspended Solids, mg/L	Weekly	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate + Nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Weekly	Grab
Cyanide, total, mg/L	Weekly	Grab
Aluminum, dissolved, mg/L	Weekly	Grab
Arsenic, total recoverable, mg/L	Weekly	Grab
Cadmium, total recoverable, mg/L	Weekly	Grab
Copper, total recoverable, mg/L	Weekly	Grab
Iron, total recoverable, mg/L	Weekly	Grab
Manganese, total recoverable, mg/L	Weekly	Grab
Nickel, total recoverable, mg/L	Weekly	Grab
Selenium, total recoverable, mg/L	Weekly	Grab
Zinc, total recoverable, mg/L	Weekly	Grab

(1) A sample shall be collected at the first sign of a discharge and weekly thereafter.

(2) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 571 (Swift Gulch) and 590 (King Creek)

TABLE 6: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	Monthly	Instantaneous
pH, standard units	Monthly	Grab
Specific Conductance, umho/cm	Monthly	Grab
Total Suspended Solids, mg/L	Monthly	Grab
Hardness, mg/L	Monthly	Grab
Sulfate, mg/L	Monthly	Grab
Nitrate + Nitrite total as N, mg/L	Monthly	Grab

TABLE 6: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab

(1) See the definitions in Part I.A. of the permit.

Surface Water Compliance Sites: D-7 (Montana Gulch), L-22 (Mill Gulch), RCSS-10 (Rock Creek/Sullivan Gulch), L-39 (King Creek) and L-49 (Swift Gulch)

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	April ⁽³⁾ , May, June, October ⁽³⁾	Instantaneous
pH, standard units	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Specific Conductance, umho/cm	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Total Suspended Solids, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Sulfate, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Hardness, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nitrate + Nitrite total as N, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide WAD, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide, total, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Aluminum, dissolved, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Arsenic, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cadmium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Copper, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Iron, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Manganese, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nickel, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Selenium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Zinc, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab

(1) See the definitions in Part I.A. of the permit.

(2) This parameter is not required at sampling sites L-39 (King Creek) and L-49 (Swift Gulch).

(3) Late April and October from the 15th to the end of the month.

Storm Water Outfalls: 504, 505, 506, 508, 511, 512, 514, 517, 519, 596 and 597

TABLE 8: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Semi-annual	Instantaneous
pH, standard units	Semi-annual	Grab
Specific Conductance, umho/cm	Semi-annual	Grab
Total Suspended Solids, mg/L	Semi-annual	Grab
Nitrate + Nitrite total as N, mg/L	Semi-annual	Grab
Arsenic, total recoverable, mg/L	Semi-annual	Grab
Cadmium, total recoverable, mg/L	Semi-annual	Grab
Copper, total recoverable, mg/L	Semi-annual	Grab
Nickel, total recoverable, mg/L	Semi-annual	Grab
Selenium, total recoverable, mg/L	Semi-annual	Grab
Zinc, total recoverable, mg/L	Semi-annual	Grab

- (1) One sample in May or June during a spring runoff event, and another sample during July, August or September during a thunderstorm event.
- (2) See the definitions in Part I.A. of the permit

2. Evaluation of Storm Water Quality Monitoring Test Results

Upon the completion of each sampling event, and upon receipt of the sampling test results by the Permittee, the Permittee shall evaluate each parameter test result by comparison with the pertinent benchmark value stated in Table 9 of this Permit, which is entitled "Storm Water Discharge Parameter Benchmark Values". If there is an exceedance of the benchmark value, the Permittee shall evaluate the source and reason of the exceedance, and consider additional BMPs and/or other facility management measures which may need to be initiated to improve the quality of storm water discharges. These measures shall be implemented as necessary and updated in the facility SWPPP as required. A summary of this evaluation of storm water quality data, any exceedances of the benchmark values, and additional BMP and/or other measures which may be necessary shall be attached to the stormwater Discharge Monitoring Reports (DMR).

TABLE 9: STORM WATER DISCHARGE PARAMETER BENCHMARK VALUES⁽¹⁾	
Parameter Name	Benchmark Level
Total Suspended Solids	100 mg/L
Nitrate + Nitrite as Nitrogen	0.68 mg/L
pH	6.0-9.0 s.u.
Arsenic, Total	0.16854 mg/L
Cadmium, Total	0.0159 mg/L
Copper, Total	0.0636 mg/L
Nickel, Total	1.417 mg/L
Selenium, Total	0.2385 mg/L
Zinc, Total	0.117 mg/L

- (1) Source of Table: EPA's 10/30/00 Final NPDES Storm Water Multi-Sector General Permit for Industrial Activities

3. Ground Water Wastewater Discharge Monitoring

Ground Water Compliance Wells: ZL-319, ZL-113 (Montana Gulch), ZL-136 (Mill Gulch), ZL-308, ZL-310 (Rock Creek/Sullivan Gulch), ZL-139 (King Creek)

TABLE 10: GROUND WATER MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Static water level, feet	July and November	Instantaneous
pH, standard units	July and November	Grab
Specific Conductance, umho/cm	July and November	Grab
Sulfate, mg/L	July and November	Grab
Hardness, mg/L	July and November	Grab
Nitrate + Nitrite total as N, mg/L	July and November	Grab
Cyanide, WAD, mg/L ⁽²⁾	July and November	Grab
Cyanide, total, mg/L ⁽²⁾	July and November	Grab
Arsenic, dissolved, mg/L	July and November	Grab
Cadmium, dissolved, mg/L	July and November	Grab
Copper, dissolved, mg/L	July and November	Grab
Iron, dissolved, mg/L	July and November	Grab
Manganese, dissolved, mg/L	July and November	Grab
Nickel, dissolved, mg/L	July and November	Grab
Selenium, dissolved, mg/L	July and November	Grab
Zinc, dissolved, mg/L	July and November	Grab

(1) See the definitions in Part I.A. of the permit.

(2) This parameter is not required at sampling site ZL-139 in King Creek.

4. Whole Effluent Toxicity Testing - Acute Toxicity

Starting in the first calendar quarter following the effective date of the permit, the permittee shall, at least once each calendar quarter conduct an acute static renewal toxicity test on a dechlorinated or prechlorinated composite sample of the effluent. Testing will employ one species per quarter and the permittee shall alternate between the two test species from one quarter to the next. Samples shall be collected on a two day progression; i.e., if the first yearly sample is on a Monday, the second yearly sample shall be on a Wednesday, etc. Saturdays, Sundays and Holidays will be skipped in the progression.

The toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA-600/4-90/027 and the Region VIII EPA NPDES Acute Test Conditions - Static Renewal Whole Effluent Toxicity Test testing protocols. The permittee shall conduct an acute 48-hour static

renewal toxicity test using *Ceriodaphnia sp.* and an acute 96-hour static renewal toxicity test using fathead minnows (*Pimephales promelas*) as the alternating species. The control of pH in the toxicity test utilizing CO₂ enriched atmospheres is allowed to prevent rising pH drift. The target pH selected must represent the pH value of the combination of effluent and receiving water at the dilution that corresponds to the toxicity limitation. This target pH value is determined before the actual toxicity sample is collected by preparing a one liter mixture of effluent and receiving water at the concentration representing the toxicity limitation. The mixture is allowed to equilibrate in a beaker at room temperature for three hours. At the end of this period, the pH is measured and reported to the laboratory conducting the toxicity analysis.

The acute toxicity measured in the effluent shall not exceed the effluent limitation expressed in Toxic Units Acute (TUa). If more than 10 percent control mortality occurs, the test is considered invalid and shall be repeated until satisfactory control survival is achieved, unless a specific individual exception is granted by the Department. This exception may be granted if less than 10 percent mortality was observed at the dilutions containing high effluent concentrations.

If acute toxicity exceeds the effluent limitation in a routine test, an additional test shall be conducted within two weeks of the date when the permittee is informed of the exceedance. Should acute toxicity exceed the effluent limitation in the second test, testing shall occur once a month until further notified by the Department.

The quarterly test results from the laboratory shall be reported along with the Discharge Monitoring Report (DMR) form submitted for the end of the reporting calendar quarter (e.g., whole effluent results for the reporting quarter ending March 31 shall be reported with the March DMR due April 28, with the remaining quarterly reports submitted with the June, September, and December DMRs). The format for the laboratory report shall be consistent with the latest revision of the EPA form Region VIII Guidance for Acute Whole Effluent Reporting, and shall include all chemical and physical data as specified.

**5. Toxicity Reduction Evaluation (TRE)
Toxicity Identification Evaluation (TIE)**

Should the effluent exceed the acute toxicity limitation in a routine test and is confirmed by the additional test, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control of, or treatment for the toxicity. Failure to initiate, or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the whole effluent toxicity limits contained in Part I.C.1 of this permit. A TRE plan needs to be submitted to the permitting authority within 45 days after confirmation of the continuance of the effluent toxicity.

II. MONITORING RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.
- C. Penalties for Tampering. The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both.
- D. Reporting of Monitoring Results. Self-monitoring results will be reported monthly. Monitoring results obtained during the previous reporting period shall be summarized and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the "Signatory Requirements" (see Part IV.G of this permit), and submitted to the Department and the Regional Administrator at the following addresses:
- | | |
|--|---|
| a) Montana Department of Environmental Quality | b) U.S. Environmental Protection Agency |
| Water Protection Bureau | 301 South Park Avenue |
| P.O. Box 200901 | Drawer 10096 |
| Helena, Montana 5 9620-0901 | Helena, Montana 5 9626 |
| Phone: (406) 444-3080 | Phone: (406) 441-1123 |
- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using approved analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The initials or name(s) of the individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;
 4. The time analyses were initiated;
 5. The initials or name(s) of individual(s) who performed the analyses;
 6. References and written procedures, when available, for the analytical techniques or methods used; and
 7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.
- I. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 841-3911. The following examples are considered serious incidents:
 - a. Any noncompliance which may seriously endanger health or the environment;
 - b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities".); or
 - c. Any upset which exceeds any effluent limitation in the permit (See Part III.H of this permit, "Upset Conditions".).
 2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and

- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
3. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.
4. Reports shall be submitted to the addresses in Part II.D of this permit, "Reporting of Monitoring Results".
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.
- K. Inspection and Entry. The permittee shall allow the head of the Department or the Director, or an authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Department or the Regional Administrator advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.
- B. Penalties for Violations of Permit Conditions. The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed \$10,000 for each day of violation and up to a maximum not to exceed \$100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, "Bypass of Treatment Facilities" and Part III.H of this permit, "Upset Conditions",

- nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
- F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Any sludges removed from the facility shall be disposed of in accordance with 40 CFR 503, 258 or other applicable rule. EPA and MDEQ shall be notified at least 180 days prior to such disposal taking place.
- G. Bypass of Treatment Facilities:
1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.G.2 and III.G.3 of this permit.
 2. Notice:
 - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, "Twenty-four Hour Reporting".
 3. Prohibition of bypass.
 - a. Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass, unless:

- (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under Part III.G.2 of this permit.
- b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part III.G.3.a of this permit.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under Part II.I of this permit, "Twenty-four Hour Notice of Noncompliance Reporting"; and
 - d. The permittee complied with any remedial measures required under Part III.D of this permit, "Duty to Mitigate".
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time

provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Department as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. One hundred micrograms per liter (100 µg/l);
 - b. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
 - d. The level established by the Department in accordance with 40 CFR 122.44(f).
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. Five hundred micrograms per liter (500 µg/l);
 - b. One milligram per liter (1 mg/l) for antimony;
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

The level established by the Department in accordance with 40 CFR 122.44(f).

IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

- C. Permit Actions. This permit may be revoked, modified and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application must be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for revoking, modifying and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren't supplied earlier.
- G. Signatory Requirements. All applications, reports or information submitted to the Department or the EPA shall be signed and certified.
1. All permit applications shall be signed as follows:
 - a. For a corporation: by a responsible corporate officer;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Department, and
 - b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- H. Penalties for Falsification of Reports. The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$25,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.
- K. Property or Water Rights. The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Department at least 30 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;
 3. The Department does not notify the existing permittee and the proposed new permittee of an intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and
 4. Required annual and application fees have been paid.
- N. Fees. The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, the Department may:
1. Impose an additional assessment consisting of 15% of the fee plus interest on the required fee computed at the rate established under 15-31-510(3), MCA, or
 2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. The Department may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this sub-section. Suspensions are limited to one year, after which the permit will be terminated.
- O. Reopener Provisions. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:
1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. Water Quality Standards are Exceeded: If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, the Department may modify the effluent limits or water management plan.
 3. TMDL or Wasteload Allocation: TMDL requirements or a wasteload allocation is developed and approved by the Department and/or EPA for incorporation in this permit.

4. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.
5. Toxic Pollutants: A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

V. SPECIAL CONDITIONS

A. Compliance Schedules (ARM 17.30.1350)

1. **King Creek Passive Treatment System (Outfall 590)**

The primary source of pollutants at Outfall 590 is the August #2 waste rock dump. This source will be removed by April 30, 2002, which will likely significantly reduce the load of pollutants discharged at this outfall. If subsequent monitoring during 2002 indicates that the permit limits cannot be met, then additional treatment will be required as outlined in the following schedule.

A treatment system design shall be developed and reviewed by the state and final designs approved no later than April 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

The system shall be constructed and limits achieved no later than September 30, 2004. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this final requirement.

2. **Swift Gulch Passive Treatment System (Outfall 571)**

The primary source of pollutants at Outfall 571 is the sulfide backfill and highwalls within the Queen Rose pit. This source will be covered with a geo-membrane and soil by April 30, 2002, which will likely significantly reduce the load of pollutants discharged at this outfall. If subsequent monitoring during 2002 indicates that the permit limits cannot be met, then additional treatment will be required as outlined in the following schedule.

Designs for a passive treatment system in Swift Gulch shall be completed no later than April 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

Bench scale testing shall be completed no later than September 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

The system shall be constructed and limits achieved no later than September 30, 2004. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this final requirement.

B. Storm Water Pollution Prevention Plan (SWPPP)

The permittee shall be required to implement the *Storm Water Management Plan for Zortman and Landusky Mine Sites* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated August 1996. This plan was approved by the Department and incorporated into the final *Water Quality Improvement and Monitoring Compliance Plan* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated July 1996.

Administrative Requirements for the SWPPP

The plan shall:

1. be retained on site in accordance with Part VI.A. of this permit for active mine sites or retained in the nearest field office for inactive mine sites and oil and gas facilities;
2. be amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to state surface waters, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with mine reclamation activities. A copy of any plan amendments must be submitted to the Department within 7 working days of any change.

FACT SHEET
for Proposed Permit Limits (Permit Renewal)

PERMITTEE: Department of Environmental Quality
Landusky Mine
P.O. Box 313
Zortman, MT 59546

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PERMIT NO.: MT-0024864

LOCATION: T25N, R24E, Sections 14, 15, 22, 23 and 27
Phillips County, Montana

RECEIVING WATERS: Sullivan Gulch, Mill Gulch, Montana Gulch, King Creek, Swift
Gulch and associated ground water systems

A. Status of Permit

MPDES Permit No.: MT-0024864 was issued, on January 3, 1987, to Zortman Mining Inc, (ZMI) Landusky Mine Site for the discharge of storm water to King Creek. The permit expired on October 31, 1991.

In August 1993, a suit was filed in District Court by the State of Montana against ZMI and Pegasus Gold, alleging violations of the Montana Water Quality Act. This was due in part to acid rock drainage (ARD) at the mine sites. The Environmental Protection Agency (EPA) filed suit in Federal District Court in June 1995, alleging that discharges from the mine sites in seven drainages were in violation of the Federal Clean Water Act (Civil Action No. 95-95-BLG-JDS). The State of Montana then filed in Federal District Court and citizen suits were also filed in Federal District Court by Island Mountain Protectors and the Fort Belknap Indian Community Council (Fort Belknap) (Civil Action No. 95-96-BLG-JDS). Settlement discussions among the parties occurred during 1995 and early 1996 to resolve the complaints. A Consent Decree was lodged in Federal District Court on July 22, 1996. After a public comment period, the Consent Decree became effective on September 27, 1996.

A new MPDES permit application was submitted by Zortman Mining, Inc. on December 20, 1996 pursuant to Paragraph 16.a of the Consent Decree. The permit application identified process water, mine drainage and storm water outfalls. This Fact Sheet and Permit were originally being prepared in response to the permit application and Consent

Decree. The Consent Decree is to terminate one year after the effective date of this permit provided that the permittee complies with the terms and conditions of the discharge permit.

Since the 1996 permit application was submitted ZMI has filed for bankruptcy protection. ZMI assets are now being liquidated under Chapter 7. The reclamation bond is held by a surety company and administrated by the Department of Environmental Quality (DEQ). The DEQ and Bureau of Land Management (BLM) are responsible for the reclamation at the site. The 1996 permit application envisioned continued mining at the site and is no longer accurate. A revised permit application is being prepared by the DEQ, which reflects the current reclamation status of the mine. The revised permit will be issued to the DEQ and signed by the current director.

A Metal Mine Reclamation Act (MMRA) operating permit was issued to ZMI on May 17, 1979. A ground water mixing zone was implied in this permit. Although the MMRA permit remains in effect it is no longer applicable to an operating mine and the ground water mixing zone designation and compliance monitoring have been moved to the MPDES permit.

B. Description of the Discharging Facility

Zortman Mining Inc. (ZMI) operated two gold mines: the Zortman Mine and the Landusky Mine from 1979 until 1996. The two mines lie adjacent to one another in the Little Rocky Mountains in Phillips County, Montana. In 1998 ZMI filed for bankruptcy protection and the mine went into a reclamation mode. Prior to the bankruptcy ZMI had constructed two mechanical wastewater treatment systems, one in Montana Gulch and one in Ruby Gulch.

The treatment system in Montana Gulch at the Landusky Mine consists of a mechanical lime addition plant sized to discharge 700 gpm (Outfall 591). Seven capture systems located in Montana Gulch, Mill Gulch and Rock Creek/Sullivan Gulch feed wastewater to the mechanical plant. Wastewater originates from beneath waste rock repositories and heap leach facilities located in these drainages. Outfalls have been designated for four of the capture systems in case of a pump failure or large precipitation event (Outfalls 599, 598, 595, and 587).

There are eleven storm water outfalls located on site (Outfalls 504, 505, 506, 508, 511, 512, 514, 517, 519, 596 and 597). A storm water management plan was submitted by ZMI to the Department in August of 1996. Storm water BMPs consist of diversion ditches, control berms, sediment basins, check dams, filter fence, etc (see Special Conditions Section I) (Hydrometrics, Inc. 1996).

Reclamation in the form of regrading and capping of waste dumps and leach pads is in process and expected to continue for 2 to 5 years.

Process water from the heaps, located at both the Landusky and Zortman Mines, is discharged by land application on Goslin Flats during May through October at

approximately 100 million gallons a year. Goslin Flats has been designated as a source area of pollutants and an outfall assigned in the Zortman Permit NO.: MT-0024864.

C. Description of Discharge and Discharge Points

1. **Past Discharge Data**

The original permit MPDES No.: MT-0024864 issued to Zortman Mining Inc, Landusky Mine Site was for the discharge of storm water to King Creek. The discharge to King Creek is only one of 24 outfalls currently under consideration at the site. The outfalls include the discharge of mine drainage after treatment, overflows of mine drainage from capture systems, storm water, and ground water. Compliance monitoring is at the designated outfalls, in groundwater monitoring wells, and one surface water monitoring site.

Data is available on the new proposed outfalls and background surface water and ground water quality in the DEQs Water Protection Bureau (WPB) and Environmental Management Bureau (EMB) files. During the life of the original permit only one storm water discharge event took place from the sediment control pond in King Creek.

2. **Surface Water Outfalls:**

<u>Serial Number</u>	<u>Description of Mine Drainage Discharge Points</u>
591	At the outfall of a lined collection pond which contains the discharge from a waste water treatment plant and the mine drainage from Montana Gulch, emptying to Montana Gulch located at approximately 47°54'30" N latitude, 108°37'47" W longitude
571	Mine drainage emptying to Swift Gulch located at approximately 47°55'34" N latitude, 108°35'50" W longitude.
590	Mine drainage emptying to King Creek located at approximately 47°55'26" N latitude, 108°37'00" W longitude.
599	At the end of a capture trench , emptying to Montana Gulch located at approximately 47°54'19" N latitude, 108°37'34" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.
592	At the end of a staging pond , emptying to Montana Gulch located at approximately 47°54'21" N latitude, 108°37'34" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

598 At the end of a **capture trench**, emptying to **Mill Gulch** located at approximately 47°54'30" N latitude, 108°36'28" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

595 At the end of a **capture trench**, emptying to **Rock Creek/Sullivan Gulch** located at approximately 47°54'41" N latitude, 108°35'53" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

587 At the end of a **capture pond**, emptying to **Rock Creek/Sullivan Gulch** located at approximately 47°54'43" N latitude, 108°35'54" W longitude. A discharge from this outfall occurs only as a result of pump failure or storm event, which overwhelms the pumping capacity.

<u>Serial Number</u>	<u>Description of Storm Water Discharge Points</u>
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508	At the end of a water sediment basin , emptying to Swift Gulch located at approximately 47°55'18" N latitude, 108°35'50" W longitude.
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596	At the end of a water sediment basin , emptying to King Creek located at approximately 47°55'35" N latitude, 108°37'03" W longitude.
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514	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°55'00" N latitude, 108°37'31" W longitude.
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597	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°54'29" N latitude, 108°37'48" W longitude.
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519	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°55'25" N latitude, 108°37'45" W longitude.
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512	At the end of a storm water diversion , emptying to Montana Gulch located at approximately 47°54'17" N latitude, 108°37'35" W longitude.
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511	At the end of a storm water diversion , emptying to Mill Gulch located at approximately 47°54'18" N latitude, 108°37'09" W longitude.
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- 517 At the end of a **storm water diversion**, emptying to **Mill Gulch** located at approximately 47°54'37" N latitude, 108°37'01" W longitude.
- 506 At the end of a **storm water diversion**, emptying to **Mill Gulch** located at approximately 47°54'29" N latitude, 108°36'28" W longitude.
- 505 At the end of a **storm water diversion**, emptying to **Sullivan Park** located at approximately 47°54'40" N latitude, 108°35'52" W longitude.
- 504 At the end of a **storm water diversion**, emptying to **Sullivan Park** located at approximately 47°54'55" N latitude, 108°35'41" W longitude

3. **Ground Water Outfalls**

Description of Ground Water Discharges, Compliance Wells, and the Surface Water Compliance Site for Swift Gulch

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|---------------------|--|
| Montana Gulch | Seepage to ground water from the 80-82 pad, 83 pad, 85-86 pad, Montana Gulch waste rock repository, Gold Bug Pit backfill, and the Queen Rose Pit located in the upper Montana Gulch drainage. Compliance wells ZL-319 and ZL-113 are located approximately 1.5 miles down gradient (southeast) from the upper drainage divide. Surface water compliance site D-7 is located 1.5 miles dowgradient from the upper drainage divide. |
| Mill Gulch | Seepage to ground water from the Mill Gulch waste rock repository, the Mill Gulch pad and the 87-91 pad. Compliance well ZL-136 is located approximately 1.5 miles down gradient (southwest) from the upper drainage divide. Surface water compliance site L-22 is located 1.1 miles dowgradient from the upper drainage divide. |
| Rock Creek/Sullivan | Seepage to ground water from the Sullivan Gulch pad and the 87-91 pad. Compliance wells ZL-308 and ZL-310 are located approximately 1.5 miles down gradient (southwest) from the upper drainage divide. Surface water compliance site RCSS-10 is located 1.1 miles dowgradient from the upper drainage divide. |
| Swift Gulch | Seepage to ground water is from the Queen Rose and Surprise pit backfill materials in upper Swift Gulch. If source control fails to stop the seepage at Outfall 571, seepage will be collected and treated prior to discharge to surface water through Outfall 571 (see the special conditions in section V of the permit). Surface water compliance |

station L-49 is located approximately 1 mile down the drainage (northwest) from the upper drainage divide.

King Creek

Seepage to ground water from the August #2 waste rock repository located in upper King Creek. If removal of the waste repository fails to remediate the seep, seepage will be collected and treated prior to discharge to surface water through Outfall 590 (see the special conditions in section V of the permit). Compliance well ZL-139 is located approximately 1/2 mile down gradient (west) from the upper drainage divide. Surface water compliance site L-39 is located 1.0 mile down gradient from the upper drainage divide.

The ground water compliance wells listed for the above outfalls define the end of the ground water mixing zones. Maps showing the locations and dimensions of the ground water mixing zones are included in the "Zortman/Landusky Project Ground Water and Surface Water Monitoring Plan"

D. Description of Receiving Water

Surface water in the mine area emanates from beneath waste rock repositories, heap leach facilities or springs and seeps effected by mining. The outfalls have been designated at these points except Outfall 591. Outfall 591 is the discharge to Montana Gulch from the wastewater treatment plant. The annual average flow from the treatment plant is 357 gpm and is equal to the combination of the individual capture systems (Outfalls 599, 598, 595, and 587). This annual average flow from the treatment plant was used to calculate the waste load allocations.

Surface Water Outfalls 591, 599, 592, 598, 595, and 587, Storm Water Outfalls 514, 597, 519, 512, 511, 517, 506, 505, and 504, Groundwater Outfalls in Montana Gulch, and Mill Gulch, Rock Creek/Sullivan

Rock Creek and its tributaries, in the area of the discharge are classified as "C-3" [ARM 17.30.610(5)]. Waters classified "C-3" are considered suitable for bathing, swimming, and recreation, growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agricultural and industrial water supply [ARM 17.30.629(1)].

Rock Creek in the area of discharges is listed on Montana's 1996 303(d) list. In the list Rock Creek is given a low priority for development of total maximum daily loads (TMDLs). The water body numbers for the affected segments are Mill Gulch (MT40EJ002-10), Sullivan Creek (MT40EJ002-11) and Rock Creek (MT40EJ002-9). The probable impaired uses are warm water fishery, drinking water supply, aquatic life support and swimming. The probable causes for impairment in Mill Gulch and Sullivan Creek are metals and pH and the probable source is resource extraction. Causes for impairment in Rock Creek are listed as metals, nutrients and other habitat alteration and the probable causes are agriculture and resource extraction.

Surface Water Outfalls 571 and 590; Storm Water Outfalls 508 and 596; and Groundwater Outfalls in King Creek and Swift Gulch

Swift Gulch and King Creek are located in the Peoples Creek drainage. The Peoples Creek drainage in the area of the discharges is classified as “B-1” [ARM 17.30.610(8)(d)]. Waters classified “B-1” are considered suitable for drinking, culinary, and food-processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply [ARM 17.30.623(1)].

Swift Gulch is a tributary to Big Horn Creek. Big Horn Creek, in the area of the Swift Gulch discharge, is listed on Montana's 1996 303(d) list and is given a low priority for TMDL development. The water body number for the affected segment in Big Horn Creek is MT40I001-3. The probable impaired uses are cold water fishery, drinking water supply and aquatic life support and swimming. The probable causes for impairment are metals and the probable source is listed as resource extraction.

King Creek in the area of the discharge is listed on Montana's 1996 303(d) list and is given a low priority for TMDL development. The water body number for the affected segment in King Creek is MT40I001-4. The probable impaired uses are cold water fishery, drinking water supply and aquatic life support. Causes for impairment in King Creek are listed as metals and other habitat alteration and the probable cause is resource extraction.

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment (WQLS), the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, et al., CV 97-35-M-DWM, District of Montana, Missoula Division. This section of the Statement of Basis establishes justification for renewal of this permit under the September 21, 2000 order.

The Montana Water Quality Act authorizes the issuance of point source discharge permits on a listed water body pending completion of a TMDL provided that: 1) the discharge in compliance with the provisions of 75-5-303, MCA (Nondegradation Policy); 2) the discharge will not cause a decline in water quality for the parameters for which the water body is listed; and, 3) the minimum treatment requirements are met.

The limits set in this permit will serve as the TMDLs for each limited parameter. Compliance with the limits set in the permit will insure that water quality standards are met and beneficial uses protected and improved. With completion of all reclamation work and the implementation of all reasonable land soil and water conservation practices the department will consider the delisting of these stream segments.

The discharges to Rock Creek/Sullivan Gulch, Montana Gulch, Mill Gulch, King Creek and Swift Gulch were in existence prior to April 29, 1993 and as such are not considered new or

increased sources. (ARM 17.30.702(16)) The provisions of the nondegradation policy only apply to new or increased sources. (ARM 17.30.705(1))

Metals and habitat alteration caused by resource extraction impair the streams in the areas of the discharges. This permit sets limits on metals that do not exceed the lowest applicable standards and improve existing water quality. The permit does not allow a discharge, which will cause habitat alteration.

This permit requires minimum treatment limits for TSS and all other parameters if they are more restrictive than water quality based limits.

E. Mixing Zone

The mixing zones for all surface water outfalls are considered instantaneous because they represent the headwaters of the stream and therefore the mean daily flow of the discharge exceeds the 7-day, 10-year low flow of the receiving water. (ARM 17.30.516(3)(d)) The 7-day, 10-year low flow from the capture system outfalls is zero. During storm events when storm water will provide dilution capacity for the discharge from the capture systems the mixing zone extends 10 stream widths (ARM 17.30.516(4)).

Ground water mixing zones have been established for each drainage which contain either mine waste rock repositories, leach pads, mine pits, or seeps and springs effected by mine activities. These ground water mixing zones have been established based on the disturbances and the geology at the mine site. Mining took place within the core of a tertiary syenite complex ringed by Paleozoic sedimentary rocks. The mixing zones typically extend from the headwaters of the drainages within the syenite complex down gradient to the contact with the Paleozoic formations. Compliance wells and the surface water compliance site in Swift Gulch are located near the end of the mixing zones to monitor for compliance with the water quality standards.

F. Proposed Wastewater Effluent Limits

1. **Technology Based Effluent Limits**

Active mines are subject to technology-based effluent limits for metals (cadmium, copper, lead, mercury and zinc), pH and TSS as defined in 40 CFR Part 440 – Ore Mining and Dressing Point Category Source Category, Subpart J – Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory. The technology based limits which apply in this permit are the New Source Performance Standards (NSPS) [40 CFR 440.104(a)]. When there are both technology based and water quality based limits for a particular parameter, the more stringent of the two limits is set as the final effluent limit. Water quality based limits for all parameters, except TSS, in all outfalls were more stringent than the NSPS standards.

Inactive mines are not subject to technology based limits. No water quality based effluent limits (WQBEL) were developed for TSS, therefore the technology-based limit will be

imposed. The TSS limit shall only apply to Outfall 591 where mechanical treatment is proposed.

2. Water Quality Based Effluent Limits

Mine Drainage

WQBELs are generally derived from a dilution model based on the concentration in the receiving stream and the 7-day 10-year low flow and the discharge high flow and concentration. The resulting instream concentrations may not exceed the lowest of either the human health or chronic aquatic life water quality standard from WQB-7 (September 1999).

Because the discharges are the first waters in the drainages no mixing in receiving water is available to input into a dilution model. For this reason no modeling has been done and the WQBEL are equal to the applicable standards. Standards for metals vary based on the hardness of the water. The water quality standards for metals were calculated using a hardness of 400 mg/L for the drainages to Rock Creek/Sullivan Gulch, Mill Gulch, Montana Gulch, and for King Creek (Table 1). The hardness was based on the data at monitoring sites L-38 (August Drain), L-3 (Gold Bug Adit), L-17 (Lower Montana Gulch Capture System), L-39 (King Creek). These data indicate that the arithmetic mean value for hardness is greater than 400 mg/L. A hardness of 150 mg/L, which is the arithmetic mean of the data at monitoring site L-19 from 1985 through 1995, was used to calculate limits in Swift Gulch (Table 2).

Mercury was first tested from 1987 through 1990 as part of the Alder Gulch land application area in Zortman. In 1991, mercury was added as part of the regular sampling program for all sites. Mercury was never used in the mining or milling process in the early days of mining nor during the ZMI era of mining. There have been a total of 2,136 samples tested for mercury over 20+ years. Of those samples, 21 have been over the detection limit. However, the detection limits used were higher than the mercury human health standard in surface water (0.00005 mg/L). Therefore, a surface water effluent limit for mercury at the outfall for the waste water treatment plant (outfall 591) is included in the permit.

Ground water limits are based on the human health standard as specified in Department Circular WQB-7 (September 1999). Human health standards are not hardness dependent.

The 30-day average limit was set at the standard and 1.5 times that limit was set as the instantaneous maximum.

Storm Water

Numeric effluent limits have not been defined in this permit for storm water discharges. Benchmark monitoring levels, as defined in the Department's *General Discharge Permit for Storm Water Associated with Mining and with Oil and Gas Facilities*, Permit No MT-R300000 are required as discussed in Section 2.

G. Final Wastewater Effluent Limitations

1. **Surface Water Final Effluent Limitations**

Mine Drainage Outfalls: 591, 592, and 599 (Montana Gulch), 598 (Mill Gulch), 587 and 595 (Rock Creek/Sullivan Gulch), and 590 (King Creek)

TABLE 1: NUMERIC SURFACE WATER EFFLUENT LIMITATIONS

Parameter⁽³⁾	Concentration (mg/L) ⁽¹⁾		Allocated Annual Average Load ⁽²⁾ (lb./day)	Rationale
	30-Day Average	Instantaneous Maximum		
Total suspended Solids (TSS) ⁽⁴⁾	20	30	86 MG	NSPS Guidelines for Ore Mining (40 CFR 440.104(a))
Aluminum, dissolved	0.087 ⁽⁶⁾	0.13	0.37 MG 0.023 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Arsenic, total recoverable	0.018	0.027	0.077 MG 0.005 KC	Water Quality Standard (Human Health WQB-7)
Cadmium, total recoverable	0.005	0.008	0.021 MG 0.0013 K C	Water Quality Standard (Human Health WQB-7)
Copper, total recoverable	0.031	0.046	0.13 MG 0.008 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Cyanide, total ⁽⁵⁾	0.0052	0.0076	0.021 MG 0.0014 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Iron, total recoverable	1.0	1.5	4.3 MG 0.26 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Mercury, total recoverable ⁽⁴⁾	0.00005 ⁽⁶⁾	0.00008 ⁽⁶⁾	0.00021 MG 0.000013 KC	Water Quality Standard (Human Health WQB-7)
Nickel, total recoverable	0.10	0.15	0.43 MG 0.026 KC	Water Quality Standard (Human Health WQB-7)
Nitrate/Nitrite total as N	10	15	43 MG 2.6 KC	Water Quality Standard (Human Health WQB-7)
Selenium, total recoverable	0.005	0.008	0.021 MG 0.0013 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Zinc, total recoverable	0.388	0.582	2.1 MG 0.10 KC	Water Quality Standard (Chronic Aquatic WQB-7)
Whole Effluent Toxicity (WET) ⁽⁴⁾	Not Applicable	1.0 TUa	Not Applicable	Water Quality Standard (ARM 17.30.629(2)(h)(I))

(1) See the definitions in Part I.A for explanation of terms.

(2) The allocated loads for Montana Gulch (MG) are based on the 30-day average limit and the annual average values of flow from the water treatment plant Outfall 591 of 357 gpm. The allocated loads for King Creek (KC) are based on the 30-day average limit and a flow of 22 gpm at the surface water compliance site L-39 based on the percent of the watershed which contains mine related disturbances

(Spectrum 2001). Load limits apply only to Outfall 591, which is the discharge from the wastewater treatment plant, and Outfall 590, which is the discharge to King Creek. These are the only outfalls expected to discharge.

- (3) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (4) This parameter applies only to the discharge from the water treatment plant (Outfall 591).
- (5) This parameter is not required at Outfall 590 in King Creek.
- (6) Because the required reporting value (RRV) in WQB-7 for mercury (0.0006 mg/L) and for aluminum (0.1 mg/L) are higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

Mine Drainage Outfall and Surface Water Compliance Site: 571 and L-49 (Swift Gulch)

TABLE 2: NUMERIC SURFACE WATER EFFLUENT LIMITATIONS

Parameter ⁽³⁾	Concentration (mg/L) ⁽¹⁾		Allocated Annual Average Load ⁽²⁾ (lb./day)	Rationale
	30-Day Average	Instantaneous Maximum		
Aluminum, dissolved	0.087 ⁽⁴⁾	0.13	0.026	Water Quality Standard (Chronic Aquatic WQB-7)
Arsenic, total recoverable	0.018	0.027	0.005	Water Quality Standard (Human Health WQB-7)
Cadmium, total recoverable	0.0034	0.005	0.001	Water Quality Standard (Chronic Aquatic WQB-7)
Copper, total recoverable	0.0132	0.02	0.004	Water Quality Standard (Chronic Aquatic WQB-7)
Iron, total recoverable	1.0	1.5	0.3	Water Quality Standard (Chronic Aquatic WQB-7)
Nickel, total recoverable	0.073	0.110	0.02	Water Quality Standard (Chronic Aquatic WQB-7)
Nitrate/Nitrite total as N	10	15	3.0	Water Quality Standard (Human Health WQB-7)
Selenium, total recoverable	0.005	0.008	0.0015	Water Quality Standard (Chronic Aquatic WQB-7)
Zinc, total recoverable	0.169	0.253	0.05	Water Quality Standard (Chronic Aquatic WQB-7)

- (1) See the definitions in Part I.A for explanation of terms.
- (2) The allocated loads for Swift Gulch are based on the 30-day average limit and a flow of 25 gpm at the surface water monitoring site L-49 based on the percent of the watershed which contains mine related disturbances (Spectrum 2001).
- (3) For determination of metals, except aluminum, use Total Recoverable method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983. Use EPA or Department approved methods of analyses after digestion (40 CFR 136.3).
- (4) Because the required reporting value (RRV) in WQB-7 for aluminum (0.1 mg/L) is higher than this permit limit, analytical results reported as less than the RRV shall be rounded to zero for averaging and reporting purposes on the discharge monitoring report (DMR).

The pH of the discharge shall remain between 6 and 9 standard units (ARM 17.30.629(2)(f)).

There shall be no discharge of floating solids or visible foam in other than trace amounts (ARM 17.30.629(2)(f))(ARM 17.30.623(2)(f)).

There shall be no discharge, which causes visible oil sheen in the receiving stream (ARM 17.30.637(1)(b)).

There shall be no discharge of wastewater, which reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving stream or upon adjoining shorelines (ARM 17.30.637(1)(a)).

There shall be no acute toxicity in the effluent discharged by the facility and no chronic toxicity outside the boundaries of the mixing zone (ARM 17.30.629(2)(h)(i)).

2. Ground Water Final Compliance Limitations

Ground Water Compliance Wells: ZL-319 and ZL-113 (Montana Gulch), ZL-136 (Mill Gulch), ZL-308 and ZL-310 (Rock Creek/Sullivan Gulch) and ZL-139 (King Creek)

TABLE 3: NUMERIC GROUND WATER EFFLUENT LIMITATIONS

Parameter ⁽²⁾	Concentration (mg/L) ⁽¹⁾		Rationale
	30-Day Average	Instantaneous Maximum	
Arsenic, dissolved	0.02	0.03	Water Quality Standard (Human Health WQB-7)
Cadmium, dissolved	0.005	0.008	Water Quality Standard (Human Health WQB-7)
Copper, dissolved	1.3	2.0	Water Quality Standard (Human Health WQB-7)
Cyanide, total ⁽³⁾	0.2	0.3	Water Quality Standard (Human Health WQB-7)
Nickel, dissolved	0.10	0.15	Water Quality Standard (Human Health WQB-7)
Nitrate/Nitrite total as N	10	15	Water Quality Standard (Human Health WQB-7)
Selenium, dissolved	0.05	0.08	Water Quality Standard (Human Health WQB-7)
Zinc, dissolved	2.1	3.1	Water Quality Standard (Human Health WQB-7)

(1) See the definitions in Part I.A for explanation of terms.

- (2) For determination of metals use the dissolved method of digestion in Methods for the Chemical Analysis of Water and Wastes, Section 4.1. EPA-600/4-79-020, revised 1983.
- (3) This parameter is not required at sampling site ZL-139 in King Creek.

H. Self-Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

For purposes of determining compliance if a single sample is collected for a monthly reporting period, that sample must be less than the monthly average. If multiple samples (greater than 1) are collected in the month the arithmetic mean of all the samples must be less than the 30-day average limit and no single sample shall exceed the instantaneous maximum limit.

1. **Surface Wastewater Discharge Monitoring**

Mine Drainage Outfall: 591 Wastewater Treatment Plant in Montana Gulch

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	Daily	Instantaneous
pH, standard units	Daily	Grab
Specific Conductance, umho/cm	Daily	Grab
Total Suspended Solids, mg/L	Daily	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate/Nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Twice weekly	Grab
Cyanide, total, mg/L	Twice weekly	Grab
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab
Mercury, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab

TABLE 4: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab
Whole Effluent Toxicity (WET), TU _a	Quarterly	Grab

(1) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 592 and 599 (Montana Gulch), 598 (Mill Gulch), 587 and 595 (Rock Creek/Sullivan Gulch)

TABLE 5: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Weekly	Instantaneous
pH, standard units	Weekly	Grab
Specific Conductance, umho/cm	Weekly	Grab
Total Suspended Solids, mg/L	Weekly	Grab
Sulfate, mg/L	Weekly	Grab
Hardness, mg/L	Weekly	Grab
Nitrate/Nitrite total as N, mg/L	Weekly	Grab
Cyanide, WAD, mg/L	Weekly	Grab
Cyanide, total, mg/L	Weekly	Grab
Aluminum, dissolved, mg/L	Weekly	Grab
Arsenic, total recoverable, mg/L	Weekly	Grab
Cadmium, total recoverable, mg/L	Weekly	Grab
Copper, total recoverable, mg/L	Weekly	Grab
Iron, total recoverable, mg/L	Weekly	Grab
Manganese, total recoverable, mg/L	Weekly	Grab
Nickel, total recoverable, mg/L	Weekly	Grab
Selenium, total recoverable, mg/L	Weekly	Grab
Zinc, total recoverable, mg/L	Weekly	Grab

(1) A sample shall be collected at the first sign of a discharge and weekly thereafter.

(2) See the definitions in Part I.A. of the permit.

Mine Drainage Outfalls: 571 (Swift Gulch) and 590 (King Creek)

TABLE 6: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	Monthly	Instantaneous
pH, standard units	Monthly	Grab
Specific Conductance, umho/cm	Monthly	Grab
Total Suspended Solids, mg/L	Monthly	Grab

Hardness, mg/L	Monthly	Grab
Sulfate, mg/L	Monthly	Grab
Nitrate/Nitrite total as N, mg/L	Monthly	Grab
Aluminum, dissolved, mg/L	Monthly	Grab
Arsenic, total recoverable, mg/L	Monthly	Grab
Cadmium, total recoverable, mg/L	Monthly	Grab
Copper, total recoverable, mg/L	Monthly	Grab
Iron, total recoverable, mg/L	Monthly	Grab
Manganese, total recoverable, mg/L	Monthly	Grab
Nickel, total recoverable, mg/L	Monthly	Grab
Selenium, total recoverable, mg/L	Monthly	Grab
Zinc, total recoverable, mg/L	Monthly	Grab

(1) See the definitions in Part I.A. of the permit.

Surface Water Compliance Sites: D-7 (Montana Gulch), L-22 (Mill Gulch), RCSS-10 (Rock Creek/Sullivan Gulch), L-39 (King Creek), and L-49 (Swift Gulch)

TABLE 7: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Effluent Flow Rate, gpm	April ⁽³⁾ , May, June, October ⁽³⁾	Instantaneous
pH, standard units	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Specific Conductance, umho/cm	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Total Suspended Solids, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Sulfate, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Hardness, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nitrate/Nitrite total as N, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide WAD, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cyanide, total, mg/L ⁽²⁾	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Aluminum, dissolved, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Arsenic, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Cadmium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Copper, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Iron, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Manganese, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Nickel, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Selenium, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab
Zinc, total recoverable, mg/L	April ⁽³⁾ , May, June, October ⁽³⁾	Grab

(1) See the definitions in Part I.A. of the permit.

(2) This parameter is not required at sampling sites L-39 (King Creek) and L-49 (Swift Gulch).

(3) Late April and October from the 15th to the end of the month.

Storm Water Outfalls: 504, 505, 506, 508, 511, 512, 514, 517, 519, 596 and 597

TABLE 8: EFFLUENT MONITORING REQUIREMENTS

Parameter	Frequency ⁽¹⁾	Type ⁽²⁾
Effluent Flow Rate, gpm	Semi-annual	Instantaneous
pH, standard units	Semi-annual	Grab
Specific Conductance, umho/cm	Semi-annual	Grab
Total Suspended Solids, mg/L	Semi-annual	Grab
Nitrate/Nitrite total as N, mg/L	Semi-annual	Grab
Arsenic, total recoverable, mg/L	Semi-annual	Grab
Cadmium, total recoverable, mg/L	Semi-annual	Grab
Copper, total recoverable, mg/L	Semi-annual	Grab
Nickel, total recoverable, mg/L	Semi-annual	Grab
Selenium, total recoverable, mg/L	Semi-annual	Grab
Zinc, total recoverable, mg/L	Semi-annual	Grab

- (1) One sample in May or June during a spring runoff event, and another sample during July, August or September during a thunderstorm event.
- (2) See the definitions in Part I.A. of the permit

2. Evaluation of Storm Water Quality Monitoring Test Results

Upon the completion of each sampling event, and upon receipt of the sampling test results by the Permittee, the Permittee shall evaluate each parameter test result by comparison with the pertinent benchmark value stated in Table 9 of this Permit, which is entitled "Storm Water Discharge Parameter Benchmark Values". If there is an exceedance of the benchmark value, the Permittee shall evaluate the source and reason of the exceedance, and consider additional BMPs and/or other facility management measures, which may need to be initiated to improve the quality of storm water discharges. These measures shall be implemented as necessary and updated in the facility SWPPP as required. A summary of this evaluation of storm water quality data, any exceedances of the benchmark values, and additional BMP and/or other measures, which may be necessary, shall be attached to the storm water Discharge Monitoring Reports (DMR).

TABLE 9: STORM WATER DISCHARGE PARAMETER BENCHMARK VALUES ⁽¹⁾

Parameter Name	Benchmark Level
Total Suspended Solids	100 mg/L
Nitrate + Nitrite Nitrogen	0.68 mg/L
pH	6.0-9.0 s.u.
Arsenic, Total	0.16854 mg/L
Cadmium, Total	0.0159 mg/L
Copper, Total	0.0636 mg/L
Nickel, Total	1.417 mg/L

Selenium, Total	0.2385 mg/L
Zinc, Total	0.117 mg/L

(1) Source of Table: EPA's 10/30/00 Final NPDES Storm Water Multi-Sector General Permit for Industrial Activities

3. Ground Water Wastewater Discharge Monitoring

Ground Water Compliance Wells: ZL-319, ZL-113 (Montana Gulch), ZL-136 (Mill Gulch), ZL-308, ZL-310 (Rock Creek/Sullivan Gulch), ZL-139 (King Creek)

TABLE 10: GROUND WATER MONITORING REQUIREMENTS

Parameter	Frequency	Type ⁽¹⁾
Static water level, feet	July and November	Instantaneous
pH, standard units	July and November	Grab
Specific Conductance, umho/cm	July and November	Grab
Sulfate, mg/L	July and November	Grab
Hardness, mg/L	July and November	Grab
Nitrate/Nitrite total as N, mg/L	July and November	Grab
Cyanide, WAD, mg/L ⁽²⁾	July and November	Grab
Cyanide, total, mg/L ⁽²⁾	July and November	Grab
Arsenic, dissolved, mg/L	July and November	Grab
Cadmium, dissolved, mg/L	July and November	Grab
Copper, dissolved, mg/l	July and November	Grab
Iron, dissolved, mg/L	July and November	Grab
Manganese, dissolved, mg/L	July and November	Grab
Nickel, dissolved, mg/L	July and November	Grab
Selenium, dissolved, mg/L	July and November	Grab
Zinc, dissolved, mg/L	July and November	Grab

(1) See the definitions in Part I.A. of the permit.

(2) This parameter is not required at sampling site ZL-139 in King Creek.

I. Special Conditions

1. Compliance Schedules (ARM 17.30.1350)

King Creek Passive Treatment System (Outfall 590)

The primary source of pollutants at Outfall 590 is the August #2 waste rock dump. This source will be removed by April 30, 2002, which will likely significantly reduce the load of pollutants discharged at this outfall. If subsequent monitoring during 2002 indicates that the permit limits cannot be met, then additional treatment will be required as outlined in the following schedule.

A treatment system design shall be developed and reviewed by the state and final designs approved no later than April 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

The system shall be constructed and limits achieved no later than September 30, 2004. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this final requirement.

Swift Gulch Passive Treatment System (Outfall 571)

The primary source of pollutants at Outfall 571 is the sulfide backfill and highwalls within the Queen Rose pit. This source will be covered with a geo-membrane and soil by April 30, 2002, which will likely significantly reduce the load of pollutants discharged at this outfall. If subsequent monitoring during 2002 indicates that the permit limits cannot be met, then additional treatment will be required as outlined in the following schedule.

Designs for a passive treatment system in Swift Gulch shall be completed no later than April 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

Bench scale testing shall be completed no later than September 30, 2003. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this interim requirement.

The system shall be constructed and limits achieved no later than September 30, 2004. The permittee shall notify the Department within 14 days of this date its compliance or noncompliance with this final requirement.

Storm Water Pollution Prevention Plan (SWPPP)

The permittee shall be required to implement the *Storm Water Management Plan for Zortman and Landusky Mine Sites* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated August 1996. This plan was approved by the Department and incorporated into the final *Water Quality Improvement and Monitoring Compliance Plan* prepared for Zortman Mining, Inc. by Hydrometrics, Inc. dated July 1996.

Administrative Requirements for the SWPPP

The plan shall:

1. be retained on site in accordance with Part VI.A. of this permit for active mine sites or retained in the nearest field office for inactive mine sites and oil and gas facilities;
2. be amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the

discharge of pollutants to state surface waters, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with mine reclamation activities. A copy of any plan amendments must be submitted to the Department within 7 working days of any change.

J. Information Sources

While developing the effluent limitations, monitoring requirements and special conditions for the draft permit, the following information sources were used to establish the basis of the draft permit and are hereby referenced:

- (1) ARM Title 17, Chapter 30, Sub-chapter 5 - Mixing Zones in Surface and Ground Water.
- (2) ARM Title 17, Chapter 30, Sub-chapter 6 - Surface Water Quality Standards.
- (3) ARM Title 17, Chapter 30, Sub-chapter 7 - Nondegradation of Water Quality.
- (4) ARM Title 17, Chapter 30, Sub-chapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Standards.
- (5) Consent Decree, (1996), In the United States District Court for the District of Montana Billings Division, Civil Action No. 95-95-Blg-JDS and No. 95-96-Blg-JDS
- (6) Consolidated MPDES Permit Application Form 1 and Short Form 2C, received December 24, 1996.
- (7) Environmental Management Bureau Discharge Monitoring Reports.
- (8) Harvey, Kevin C., (1998), Background Surface Water Quality at the Zortman Landusky Mine Sites, pp.31.
- (9) Hydrometrics, Inc., (1996) Storm Water Management Plan for Zortman and Landusky Mine Sites.
- (10) Montana Water Quality Act, MCA 75-5-101 et seq.
- (11) Montana (1996) 303(d) List, list of Waterbodies in Need of Total Maximum Daily Load Development
- (12) MPDES Permit File No. MT-0000396, effective date of January 3 1987, expiration date of October 31, 1991.
- (13) Updated MPDES Permit Application for the Landusky Mine Site Phillips County, Montana, dated December 20, 1996.